
Growing Green

Business Plan

Using hydroponic technologies to tackle food insecurity and agricultural health



Private and Confidential

Urban Farming Solutions Incorporated
58 Dodge Road, Toronto
ON M1N2A9 Canada
Effective as of April 11, 2018

Table of Contents

The Challenge	3
Environment Analysis	4
The Opportunity	8
Market Characteristics	10
Competitive Space	11
Our Solution	14
Vision, Mission and Values	16
The Team	17
Business Model	18
Financial Analysis	20
Impact Overview	25
Executing the Model	27
Gantt Chart	29
Risk Analysis	31
Conclusion	33

The Challenge

Growing Green is an urban farming solutions company operating out of Toronto, Canada. We design, manufacture and sell equipment and technologies for urban food production. Through innovative, user driven design we intend to tackle the issue of local food insecurity.

Big agriculture has dominated the food industry for decades. Production over process philosophies drive abusive environmental practices and chemical dependence. This combined with grocery stores as a distribution channel have alienated urban dwellers from their food. As ownership of agriculture and the patent rights to bioengineered food become homogenized into several conglomerates - humanity loses it's food security and becomes more vulnerable to existential crises. This trend is shown in the Toronto food market which is also our place of operation and why we're starting by tackling this market.

A shift of food production to urban environments will spread ownership to the individual and mitigate many of the environmental damages caused by industrialized agriculture. This shift will only happen if the ROI of investing in urban food can become equal to or less than that of rural, mass scale agriculture. As well the time commitment towards growing must be minimized through automation and intelligent customer driven industrial design. This is the long term vision of Growing Green, to dramatically lower the cost of urban food production to stop the damages the previously mentioned trends are causing.

Growing Green is going to tackle this plan in a three stage process by iteratively tackling more ambitious markets starting first with small scale growing for targeted high price/ volume plants like marijuana, spices, or flowers. Then progressing to home/ niche growers who are willing to pay more for food they can witness the origins of. Finally our ideal target market is an urban, space owner who is willing to invest in food security and save money on their grocery bill. Through this approach we can be profit positive the entire development stage and lower our risk through progressive capital requirements rather than needing a massive upfront investment to fund R&D before we can generate any sort of revenue.

We're competing with several different solutions. First is the status quo, or people's indifference about solving the food security problem. If we place food production into the individuals hands, that individual will have to take action and if they don't want to, they won't. So education is going to be a large component of our roadmap. Next is big agriculture, a \$US 3+ trillion industry worldwide¹. This industry has established channels of distribution, labour markets and customers all of whom we'll disrupt if our vision is realized. These stakeholders in big agriculture will fight us or buy us out if our movement and products gain traction.

Finally we're competing with other growing solutions. Our success is predicated upon us designing a system which meets the following criteria; autonomy, cost, reliability (% of plants grown to maturity), integrability, range of plants it can grow. If other systems meet these design

¹ <https://data.worldbank.org/indicator/NV.AGR.TOTL.CD>

priorities more effectively or timelier than us while matching our vision they'll outcompete us and take the market.

Growing Green is currently developing a second iteration of our prototype based off the aforementioned design priorities and exploring funding channels for initial production. More on this is shown in our Gantt chart and roadmap.

Environment Analysis

Political

Government support for agriculture is prevalent in all OECD countries. In countries - Japan, South Korea, North Korea and Switzerland government subsidies make up over half of farmers revenues. In 2011 the Canadian government spent 6.9bb on subsidizing agriculture nation wide². This policy of subsidizing industry mirrors that of the movement from combustion to electric engine cars where governments have resisted trends to support declining job heavy industries. In this example Growing Green will be the Tesla of the shift of agriculture from rural to urban growing environments.

Lobby groups are prevalent in agriculture and organizations ranging from corporate (Monstanto) to public (Dairy Farmers of Canada) influence politicians to varying degrees to shift the market away from a natural equilibrium which most effectively meets consumer/ societal needs. North American governments are to some extent recognizing this trend and putting some money towards urban agriculture. One notable example is the USDA providing grants to urban farmers in the US³. Agriculture makes up a large component of what incentives free trade agreements like NAFTA. Current NAFTA renegotiations feature agriculture, among other things, as a major point of contention regarding tariffs, duties and variable taxation rates. Internalizing the production of food to a greater degree by exploiting new land in urban environments will lead to increased bargaining power in negotiations like these.

Economic

Growing Green will start initially in Toronto before expanding city by city to new jurisdictions. Economic inequality and a lack of food security for many will lead people to adopt solutions like Growing Green which integrate into their lives in a sustainable, cost

² <https://beta.theglobeandmail.com/report-on-business/taxpayers-oblivious-to-the-cost-of-farm-subsidies/article13055078/?ref=http://www.theglobeandmail.com&>

³ <http://www.businessinsider.com/usda-urban-agriculture-2016-12>

efficient way. Millennials have been spending a greater percentage of their “food dollars” on eating out at 44% compared to the last generations 40%⁴. Canadians average \$200 per person per month on food bought from the grocery store. This varies by province depending on access to food and what types of food proportionally make up peoples diets. In Alberta for instance this goes up to \$240 and in Nova Scotia down to \$186⁵ with costs overall being higher in cities as in Toronto where it’s \$254. Food generally costs 10-15% of peoples gross annual income so for a \$40,000/year income earner they would spend \$4000-\$6000 on groceries. First Nations will spend up to 50% of their GAI’s on food owing to accessibility and lower incomes with food being somewhat fixed in cost. Proportionally 24% of that is composed of fruits and vegetables, 20% on meats, 23% on processed foods,

Food inflation as it’s known causes the prices of food to rise 2-4% per year in most categories with some like meat experiencing even sharper price growth rates.

Canadians represent about 0.5% of the global population, produce about 1.5% of the food in the world, and consume about 0.6% of world food production. In 2007, \$92 billion was spent on food and beverages in stores for household use, and an additional \$50 billion in restaurants and bars. More than 70% of the food bought in Canadian stores in 2007 was produced domestically. The United States is the source of more than half (57%) of imported food, and similarly 55% of domestic food exports from Canada are directed to the United States⁶.

Social

The Canadian agriculture and agri-food system (AAFS) is a complex and integrated supply chain that includes input and service suppliers, primary producers, food and beverage processors, food retailers and wholesalers, and foodservice providers. The activities along this supply chain generate significant economic benefits at both the national and provincial levels.

In 2014, the AAFS generated \$108.1 billion, accounting for 6.6% of Canada's gross domestic product (GDP). Of this, the food retail and wholesale industry accounted for the largest share (1.8%), followed by the food, beverage and tobacco (FBT) processing industry (1.7%). The AAFS GDP has increased annually since 2007, except during the economic recession of 2009.

⁴ <https://www.forbes.com/sites/alexandratalty/2016/10/17/millennials-spend-44-percent-of-food-dollars-on-eating-out-says-food-institute/#4c1196233ff6>

⁵ <https://globalnews.ca/news/3437328/groceries-budget-canada/>

⁶ <http://www.statcan.gc.ca/pub/16-201-x/2009000/part-partie1-eng.htm>

Employment in most industries in the AAFS continued on an upward trend. In 2014, the AAFS provided one in eight jobs in Canada, employing over 2.3 million people. The foodservice industry was the largest employer in the AAFS, accounting for 5.7% of all Canadian jobs.

Technology

Growing Green is a part of a trend towards integrating food systems into peoples lives. Among our competitive environment and in 'Tier 1' tech cities like Silicon Valley, New York and to some extent Toronto, Chicago, and other major North American cities. These cities are hubs of technology and accepting of innovation. These citizens and their overseas equivalents will act as the catalysts for the movement towards sustainable urban food production systems.

Farmers demonstrated innovation in areas such as new crop varieties and livestock breeds or processes and practices such as soil management methods, fertilizer application methods, precision farming and marketing methods on their operation, with about half of Canadian farms (48%) adopting at least one type of new or significantly improved product, process or practice between 2011 and 2013.

Financing was a critical factor influencing 59% of farm operators' decision to implement an innovation. However, a greater share of million dollar farm operators (72%) stated financing was a critical factor compared to only 44% of operators of smaller farms in the revenue class of \$ 25,000 to \$99,999.

Canadian farmers relied on their own experience (91%) and the advice from peers (68%) when deciding whether to adopt or innovate.⁷

Environmental

Agriculture can be both a source of and a sink for greenhouse gas (GHG) emissions. In 2013, agriculture was responsible for about 10% of national GHG emissions. Over the 1990-2013 period, Canada's agricultural GHG emissions remained relatively stable when considering all sources and sinks.

The proportion of total land used for agricultural purposes in 2011 is small in Canada and has decreased slightly since 1971, down to 64.8 million hectares, or 7% of Canada's total land area.

⁷ <http://www.agr.gc.ca/eng/about-us/publications/economic-publications/an-overview-of-the-canadian-agriculture-and-agri-food-system-2016/?id=1462288050282>

Agriculture accounts for a small proportion of Canada's overall water use, which refer to any utilization of water regardless of whether it is consumed or returned to its original source. However, agricultural consumption of water, water withdrawn but not directly returned to its original source, is substantial compared to other economic sectors. In 2009, agriculture consumed around two billion cubic meters, or 84% of its water use.⁸

Legal

Agriculture in Canada is overseen by various bodies each of which implement separate policy to meet their individual departmental goals. "Several agencies are involved in the regulation of agricultural products. The main regulators are The **Canadian Food Inspection Agency**, **Health Canada** and **Environment Canada**."⁹

These agencies have changed their mandates and been reorganized over many decades of operation but generally, as the following attests to, they've been dictated by the society they operate within. "Support programs in Canada have gone through very substantial change over the past 50 years in response to these broad ranging economic, international, and social objectives and pressures. Indeed, the evolution in producer support dates back to the beginnings of the 20th century."¹⁰

"There is a vast array of agricultural products being developed or imported into Canada. Depending on the type of product, where it comes from and the intended use, different control measures are used. All potentially hazardous **imported commodities** are controlled to reduce the possibility of the introduction of agricultural pests and diseases. Examples of such controls include the use of permits, testing, quarantine or inspection. Products which may pose a hazard to the environment are subjected to an **environmental safety assessment**. All new products, whether produced by traditional means or derived through genetic engineering would be included in this category.

Government evaluators, in collaboration with experts and the public, have developed guidelines for each class of domestically-produced product, which assist in the development of new products still in the research stage. These **regulatory directives** facilitate the presentation of adequate and appropriate information by the product developer, so that

⁸ <http://www.agr.gc.ca/eng/about-us/publications/economic-publications/an-overview-of-the-canadian-agriculture-and-agri-food-system-2016/?id=1462288050282>

⁹ <http://www.inspection.gc.ca/plants/plants-with-novel-traits/general-public/overview/eng/1338187581090/1338188593891>

¹⁰ <https://caes.usask.ca/meetings/the-evolution-of-agricultural-support-policy-in-canada.pdf>

potential hazards can be identified early in the process. Government regulators use this information to determine whether new products meet acceptable safety standards. Based on the product definition, specified protocols are applied which govern the conditions of release into the environment. Frequently, field testing is performed on a confined basis. In certain cases, such as for contract growing, certain confinement conditions may be either imposed or relaxed depending on the characteristics of a novel product. **Scientific information** is gathered during the development phase, and provided to evaluators as required. Information is produced during research trials conducted under laboratory conditions and field testing of new plants, or, in the case of veterinary biologics and livestock feeds, animal testing.

Depending on the product, prior to commercial production, **approval, registration or licensing** might be required. This is done in the case of biofertilizers, certain plant species, livestock feeds and veterinary biologics. Once the product has been approved, **quality assurance monitoring** of the products, as in the case of veterinary biologics, or **food safety inspection**, will be performed. All of these regulatory control measures are taken to assess the quality, safety and efficacy of the product. **Labelling** is an important means to inform the consumer about product facts. Discussions are underway concerning the various ways to communicate information on products that are derived through genetic engineering.”¹¹

The Opportunity

To understand the opportunity present here, we need to understand what the market conditions are and who Growing Green’s competitors are.

Market Size

Canada exports \$24.5 billion and imports \$11.5 billion. The majority of that is composed of rural agricultural growing. “Canadians represent about 0.5% of the global population, produce about 1.5% of the food in the world, and consume about 0.6% of world food production.”¹²

The market for Growing Green is loosely defined since there aren’t any databases tracking individual growers meeting their own food needs. The dawning of IoT enables sensors, and apps presents an interesting side opportunity perhaps allowing Growing Green to become the organization which develops that capacity. However as it stands the market for food is

¹¹ <http://www.inspection.gc.ca/plants/plants-with-novel-traits/general-public/overview/eng/1338187581090/1338188593891>

¹² <https://www.statcan.gc.ca/pub/16-201-x/2009000/part-partie1-eng.htm>

massive and the current paradigm not sufficient to meet growing urban proportions and worldwide populations.

Spending Trends

People are preferring to spend money on organic, GMO-free and healthier food options. A greater proportion food money is being spent on food prepared and sourced outside the home. The combination of this trends has led to the rise of a more complex cloud based delivery system in the form of Foodora, UberEats and the fast casual food industry with firms like Chipotle, or Qdoba which utilize these higher quality ingredients and a better standard of service to meet more informed customers needs.

Industry Trends

Collectively agriculture is trending towards fewer farmers using more means of automation to produce ever greater volumes of food for growing populations. Intuitively this suggests their will reach a point where technology can't further expand the growing capacity of overworked farmland. Recognition of this has led to the development of a variety of indoor growing techniques like hydroponics, aquaponics and aeroponics. These techniques have helped disseminate growing power but the movement is limited by the cost and time requirements of current growing systems. Many see food as a commodity and for them it's about finding the minimal time/financial cost of meeting their families food needs.

Investment Trends

The problems Canada's indigenous face, and an overall awareness of the movement of people towards urban centres has led investors, governments and educational institutions to seek solutions to the problems of food security, water infrastructure, air purity, architecture the movement and flow of people to and from work/home and places of leisure. This has led to money being invested into industries like "GreenTech", "CleanTech", and other buzzword laden industries attempting to tackle these problems. Time will only accelerate these trends as they begin getting results from their investments and seeing societal benefits arising from them.

Domain Challenges

Inherent to working in food production is the sentiments of people, and the complex institutional systems which exist to prop up the current big agriculture paradigm. People are inherently mistrustful of food and biased towards thinking disseminated food production is hard, dirty and not worth it. This represents the technology that has historically existed and

to some extent exists today. Growing food in home is more work than buying it in stores. However when taken as a whole, from the trip to the grocery store, to the societal and social costs of agrochemical, distribution systems and the grocery store as a hub and lifeline for communities the argument is less prescient and with increased awareness of this people will likely shift their sentiments away from No Frills and towards Food From Home.

Market Characteristics

Competitive Rivalry

Growing Green has many competitors operating in the same problem space. Our products are developed in-house and have intellectual property protection. Our prototypes are still less advanced than what's available on the market. We have a greater vision than that of our competitors. Most of our competitors have access to superior funding. We're incubated within the Ryerson University ecosystem giving us access to space, networking and funding opportunities unavailable to most of our rivals. We have a much less established brand presence than our rivals. Rivalry in this industry is medium. There are many differentiated product offerings meeting different needs and the industry is growing. However the market size is still small and there are many small firms playing in this space.

Bargaining Power of Suppliers

Our components primarily come from the: plumbing, electrical, plastics and agribusiness industries. Each of the players in these players is established and has a substantially higher revenue than Growing Green. For this reason each is both unconcerned with us and also able to wield extreme power should they desire. These industries operate as oligopolies however most of the components we use can be substituted or bought from a number of firms both domestically and abroad. For this reason the bargaining power of our suppliers is low.

Bargaining Power of Customers

Growing Green's product offerings are differentiated from our competitors. Using our 10x advantage arising from innovative development and attacking different problems in the same space we offer things our competitors currently don't. Beyond that the switching costs to our consumers is medium as they'd have to entirely dismantle, drain, pack and send their system to return it to us. But conversely we make it easy to exchange, receive and return products through our mail operated system. This makes the subscription model possible, but also lowers switching costs for customers. For that reason bargaining power for our customers is medium falling somewhere in between the ease of mail and the extraneous work of total system dismantling.

Threat of New Entrants

Developing the technology necessary to enter the food production industry is easy. Arguably any hobbyist growing food in their garden is an entrant in the market. However developing the scale necessary to impact food via your production or manufacturing the systems needed to distribute the means to grow food is a much more significant challenge. Through Growing Green's strong brand presence and forward thinking leadership, we're capable of branding ourselves much more effectively than our competitors. They primarily see themselves as being "hydroponics" companies and not as a direct competitor with big agriculture for the food dollar of the individual. The strength of our vision will separate us from our competitors and give us an edge over future market entrants. However rudimentary hydroponics systems are easy to build home for those so inclined. Our systems are more advanced resulting from our prototyping process but substitution and new market entrants are both relevant factors.

Threat of Substitute Products or Services

Our competitors generally charge significant amounts for their systems. For that reason they can't offer themselves as a cost saving alternative to the grocery store, since the time and financial cost of their systems outweighs that of purchased produce. Our competitors systems at this point are similar to ours however further iteration towards our beachhead products will differentiate us further and raise the cost of substituting our product offerings. Through continued innovations we'll further distance ourselves from the technological capacities of new or threatened entrants and further raise the value of our IP and brand.

Competitive Space

To understand the competitive environment we're entering into we've structured our competitors into four key areas which are outlined below.

Direct Competitors

These competitors design or sell similar systems with roughly parallel intentions. A case study for this type of competitor should demonstrate both what they're doing, and why Growing Green has a significant competitive advantage over them. Just Vertical is a Toronto based firm operated out of UofT. Founded by two alumni both with scientific backgrounds they've gotten funding from inside the school in the form of a grant and a \$30,000 contract to

supply growing walls to the UofT kitchens. They purchase growing systems from Modular Farms out of Brampton who themselves have a contract with Bright Agrotech out of Wyoming as the exclusive supplier of the ZipGrow vertical farming system.

They've used their funding thus far to buy ZipGrow systems and lease them to consumers. They hand deliver pre-germinated seeds for use in these towers alongside towers mimicking our subscription model. To reach customers they go to trade shows and rely on the slow pace of word of mouth. They're currently looking for their limited market traction to entice venture capital to fund their outsourcing the design of a new unit and bringing it to production which they estimate will cost \$200,000.

Growing Green has several advantages over this model. We design things in house with a multi-disciplinary team that enables us to create factor savings in efficiency and cost. We utilize pressed seed pod technology which allows our seeds to germinate quickly, be shipped globally, and be used and stored at the consumers convenience. Our greater vision beyond hobbyist food production gives our operations a clarity and weight that there's lack. This especially in a social media environment is critical to gaining consumer awareness and engagement and combined with the other aforementioned factors composes our competitive advantage over Just Vertical and the competitive niche they represent which is characterized by an unclear vision, legacy technology, and an unvalidated, suboptimal business model.

Other Examples: Modular Farms, HomeGrown Hydroponics, Hydroponics Group, Tower Garden

Types of Products: Hydroponics Towers, Lighting Systems, Consumables

Share of Market: Small

Strategies: Sell Direct, Subscriptions, Online or In Other Peoples Stores

Marketing Methods: Online Ads, Organic, SEO, Word of Mouth, Trade Events

Strengths and Weaknesses: Low Operating Costs, Internal Manufacturing (Usually), Brand Value

Indirect Competitors

This area of competition encompasses the firms who are attempting to solve the same micro problem (as opposed to macro) using distinct and different methods. A local competitor that demonstrates this is Modgarden and their sole product offering TinyFarm. They along with aero, and aquaponic manufacturers have taken an alternative approach to the problem of growing food in urban consumers homes. Modgarden opted to use a conventional farm approach integrated into a bookcase like system for use in the home. Citing proprietary but unpublished research which indicates the nutritional profile of different growing methods are

different, and that soil based growing is the ideal. The sole founder of Modgarden believes his system to be the pinnacle of this micro competitive environment.

He's taken some consumer needs into consideration. Through a IoT paired app, users can modify settings and view sensor produced information to understand their growing environment. However the soil based method of growing, and the design has significant limitations. The ratio of growing volume to production is very poor. It's a large bulky system which inefficiently uses conventional urban growing technology to produce low volumes of limited varieties of plants. The founder Amar is seeking funding to fund a larger scale of operations through his incubator MarS. His manufacturing capacity is low and pre-sales are moving slowly. His idea has some validity to it, some consumers like the idea of a "garden" in their home. But as a food production unit prioritizing ROI and TEE it's not very competitive and has a much smaller market which it much less effectively meets the needs of. Other aspects of this competitive group like marketing methods, cost and revenue structures are very similar.

Other Examples: GrowRatio, FarmBot, Bowery Project, MushBox

Types of Products: Industrial Growing Systems, Do It Yourself Kits, Consumables

Share of Food Market: Small

Strategies: Sell Direct, Subscriptions, Online or In Other Peoples Stores

Marketing Methods: Online Ads, Organic, SEO, Word of Mouth, Trade Events

Strengths and Weaknesses: Low Operating Costs, Internal Manufacturing (Usually), Brand Value

Alternative

This area of competition encompasses those firms which solve the same macro problem. Beyond being indirect competitors who manufacture different systems these firms grow food in entirely separate ways and on different scales. An example of this locally is Ripple Farms. They use industrial scale aquaponic systems to compete with big agriculture by staging their factories inside of urban areas in this case Markham, Ontario to get closer to their customers and stakeholders and minimize the food miles our produce undergoes. They're early stage and are still building up their capabilities but Mirai Group a Japanese equivalent uses similar vertical, urban farming techniques to produce food in insecure or limited food environments. These groups and their customers recognize the macro problem of food insecurity but are taking very different approaches to solving this systemic problem.

Other Examples: Mirai Group, Canopy Growth, Ripple Farms

Types of Products: Industrial Growing Systems, Produce For Retail Sale

Share of Food Market: Medium

Strategies: Sell Direct, Subscriptions, Online or In Other Peoples Stores, Partnerships With Food Distributors or Restaurants

Marketing Methods: Online Ads, Organic, SEO, Word of Mouth, Trade Events, Industry Standards

Strengths and Weaknesses: Scale, Government Funding, Dispersed Channels, High Operating Costs, Limited Awareness

Status Quo

While the firms that represent status quo competition are the same as alternative in this circumstance. The mechanism underlying it is consumer behaviour as opposed to firm. The status quo is competing with consumers general indifference about changing they're current behavioural patterns. This could be consumers preferring meat over produce and not needing to grow their own produce as a result. Or that their time availability means grocery stores or the systems of distribution for overseas producers or those producers themselves.

For these reasons the competitive environment of the status quo is both our biggest competitor and the hardest to grapple with and quantify.

Other Examples: Grocery Stores, Big Agriculture, Other Types of Food.

Types of Products: Produce, Convenience, Varieties of Food Inaccessible Locally, Other Types of Food

Share of Food Market: Large

Strategies: Keep People Eating What They're Used To, Minimize Change, Profit and Production Over Environment

Marketing Methods: Mass Media, Online, Flyers, Industry Standards

Strengths and Weaknesses: Hard To Quantify But Large Environmental Impact, Most Of Market Share

Our Solution

Value Proposition

Get healthier, pesticide free food in your home for less than what you'd pay in the grocery store. Growing this food only requires you to "plant" the seed pods we'll deliver to your door and to harvest and eat your produce once it's mature. Either subscribe to our system and pay less per month than what you could equivalent get in the grocery store or farmers market or buy it outright and save even more in the long term. We'll install and maintain the system for you for a higher subscription fee, or do it yourself and save. No matter what your unique growing needs we'll accommodate you in a way that works for both of us.

Target Markets

1. **Large companies.** By pursuing our disruptive urban growing model we'll get stakeholders invested in the current big agriculture industry interested in stopping us by competition or buyout. If we place ball we can very likely get a multi million dollar buyout in a 3 year time frame. The industry could be variable but potential options are Monsanto,
2. **Niche growers.** As our technology develops we won't reach our development priority of an ROI that matches the grocery stores for individual consumers. Until then we'll need to target people who are willing to pay more than the grocery store for produce which is certified organic, and GMO-free and in which they have some hand in the production of. These people could also be called hobbyists.
3. **High price per volume growers.** Different plants have different prices by weight. The urban growing system is ideally suited for the production of these as they have high fixed costs that otherwise make them expensive elsewhere. A notable example is marijuana. While developing technology for future markets we can prepare a specific iteration for marijuana production which allows urban consumers to outcompete government or approved dispensaries for cost per measure of volume.
4. **Mass market.** Once our technology has advanced to the point we can grow food for less than the cost of grocery stores we'll be able to reach the mass market and convince them of the viability of growing their own food.

Marketing Plan

To reach our various target markets we have several different initiatives. First of all we need to get initial pre-sales to fund manufacturing. Regardless of which target market we pursue and when, we'll need market traction and validation for our Minimum Viable Product before we can decide on funding sources and specific markets to pursue.

As outlined earlier we're likely following a pyramidal approach where we start with low volume/high cost plant types and work our way through niche growers to the mass market by optimizing our TEE (Total Energy Equation) and the ROI of urban versus industrialized rural agriculture.

To reach our initial market of niche growers we;

- Leverage word of mouth around our home communities to generate interest and pre-sales.
- Target specific types of plants like marijuana or other high cost/low volume plant types to optimize ROI for initial customers.
- Utilize a "concierge" model initially giving our customers more direct service to generate better quality user experience reports and more interest in sharing our products.
- Social campaigns targeted at food awareness and security.

-
- Visit trade shows, consumer markets and other places relevant stakeholders hang out to begin generating an awareness of our product offering and vision.

Vision, Mission and Values

Vision

We see a world where consumers are free to make informed food choices, and have influence on what they eat and where it comes from. Our growing systems have been adopted around the world and people are discovering the joys of an integrated food system that has their health and well being as it's priority. Whenever they want to eat, they just pluck their desired produce from the integrated equipment in their dwelling and enjoy it's complex, natural flavours. This diffused ownership model has led people to reconnect with their food in a way that cookbooks, and store shelves never could. It's reduced the cost of food greatly for middle and low income families and has made epidemic levels of obesity and heart ailments disappear.

Mission

Growing Green manufactures this integrated urban growing systems to delight our customers and realize a profitable prosocial good. We follow our design priorities and make optimizing the energy equation of food our litmus test of success. The more food we see produced where people eat it, the more we know we've succeeded. This trickles down into healthy attitudes towards food, to an awareness of the origin of both our foods, and of the inputs into all the consumer goods we consume and engage with. Once consumers see this is possible they'll apply pressure to other companies to do better with sourcing their materials and ultimately create a viral effect of manufacturing responsibility and oversight.

Values

Growing Green is committed to improving the world both through it's work cementing greater food security and in all its hiring, manufacturing and environmental practices. We believe a healthy food system is built off a healthy world and are committed to seeing that dream come to life. Our moral compass guides us towards making our stakeholders lives better following the triple bottom lines methodology of people, planet and then profit. Through getting our growing systems freely integrated into at risk homes and government run buildings we hope to increase food health throughout the entire food system and ultimately make things better for everyone. As the adage goes "When things are better for everyone, *they're better for everyone.*"

The Team



Chief Executive Officer

Andrew James Walls

Andrew is a fourth year entrepreneurship student with experience ideating and growing new organizations. His academic interests in lean principles, and strategic organization combined with his prosocial inclinations lend him the talent and skills to lead Growing Green.



Chief Financial Officer

Joshua Alan Fowke

Josh is a fourth year entrepreneurship student whose passionate about organization management and talent development. His talent with financial planning, funding acquisition and strategic organization makes him an ideal fit for CFO of Growing Green.



Chief Marketing Officer

Christopher David Bright

Chris is a third year marketing student and marketing head for Enactus Ryerson, an award winning prosocial entrepreneurship organization. His experience in ethnographic research, customer development and sales is why he's Growing Greens CMO.



Chief Technology Officer

Jacob Marcel-Silvio Turola

Jacob is a third year biology student with a penchant for design and solving tough problems. His experience in academics alongside his engineering skills gives him the rigour to design and cost the complex systems Growing Green is developing, making him an excellent CTO.

The Right Leadership Team

Through a combination of business acumen, operational experience and domain knowledge the Growing Green leadership team is well suited to the task of developing and commercializing innovative urban food technology. Collectively we can tap into our networks within the innovation and technical hubs of Ryerson University for talent, funding and mentorship. Together we complement our individual strengths, and mitigate the downsides of our weaknesses which makes us a productive, creative and effective team.

Business Model

Growing Green's business model has two broad strategies which allow us to differentiate our offerings from our competitors through factor improvements in key value areas in urban growing.

Cost Leadership

By integrating cutting edge technologies into our systems while designing them with consumers actual living spaces and specific needs in mind. We can cut the waste that most hydroponic designs have which add additional costs while giving people exactly what they need to have the system disappear behind the produce they'll gather. Some examples are integrating technologies from firms like NanoLead or GrowRatio which have factor improvements to specific components of our system with NanoLeafs ultra-efficient lightbulbs or GrowRatios indoor farming setup expertise for plant variety.

This along with a firm designed and focused behind one specific product offering and mission will allow efficiencies which can be passed onto consumers. This cost reduction alongside a leasing model which allows consumers to defer the significant upfront costs of conventional systems will allow this factor improvement to be possible. Through this Growing Green will have cost leadership in relatively untouched industry and a competitive advantage which when combined with differentiated product offerings should prove sustainable as we scale operations.

Differentiation

Through the acquisition of proprietary access to other firms technologies combined with innovations generated internally we can produce systems that are a factor more efficient than our direct competitors. This combined with rigorous design criteria in; automation, plant range, integrability, cost, system to plant volume ratio and reliability will lead to consumer oriented design that specifically meets their needs without the waste seen in conventional systems.

Through customer development and validation processes done before our hard launch we'll confirm we've met these consumer needs and will release a product that is low risk and of significant value. This combined with the cost and environmental savings of our research into improving the ROI and TEE of urban food gives consumers an enticing, engaging reason to integrate urban food production into their lives and advance this positive prosocial change.

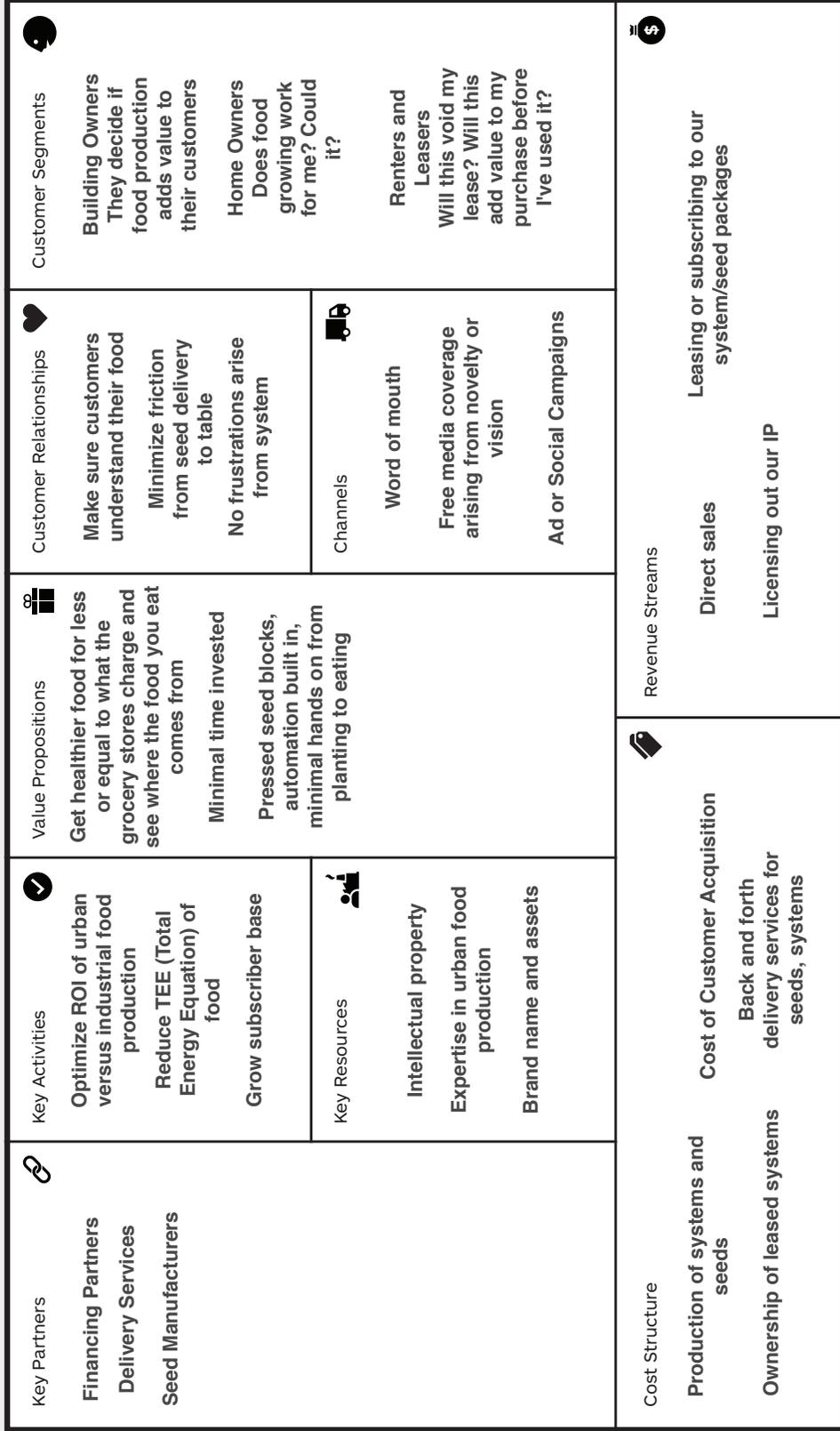
The Business Model Canvas

Designed for: **Growing Green**

Designed by: **Andrew James Walls**

Date: **12 Oct, 2017**

Version: **1.0**



Financial Analysis

1.0 Breakeven Analysis

Type of Cost	Year 1	Year 2	Year 3
Operating Costs	-\$27,800	-\$111,200	-\$222,400
Capital Spending	-\$50,000.00	\$0.00	\$0.00
COGS	-\$71,391.60	-\$242,731.44	-\$536,456.88
Revenue	\$130,962.50	\$455,937.50	\$1,004,825.00
Breakeven Point	-\$18,229.10	\$102,006.06	\$245,968.12

***** Assumptions *****

- Operating costs outlined below (See 4.0) estimated for Year 2. These costs for various reasons grow with time. For Year 1 treated as 25% of Year 2 costs, 200% for Year 3.
- Revenue taken as 25% of subscription model and 75% of direct sale model.
- COGS taken from subscription model.
- This model doesn't account for the longer horizon of the subscription model. In a three year time frame the direct sales model has better profits.

1.1 Cost of Goods Sold Per Unit

Type of Cost	Cost	Quantity	Total Cost
6" of 3" PVC Sewer Pipe	\$3.44	1	\$3.44
10ft of 1/2" CPVC	\$5.14	1	\$5.14
10ft of 3/4" PVC	\$9.95	1	\$9.95
3/4 Tee Junction PVC	\$1.53	1	\$1.53
3" Female Adapter PVC	\$2.86	1	\$2.86
1/2 Elbow Slip PVC	\$0.21	3	\$0.63
3" Cap PVC	\$2.29	1	\$2.29
3" Plug PVC	\$3.11	1	\$3.11
3/4" Plug PVC	\$0.62	1	\$0.62
3/4 Male Adapter PVC	\$0.21	2	\$0.42
3" Male Adapter PVC	\$3.55	1	\$3.55
18 Gallon (68L) Reservoir	\$10.00	1	\$10.00
Dual Outlet Timer	\$9.65	1	\$9.65

Type of Cost	Cost	Quantity	Total Cost
Water Pump	\$66.13	1	\$66.13
1ft of Vinyl Tubing	\$0.65	1	\$0.65
2" PVC For Cups	\$1.50	1	\$1.50
3/4" UniSeal	\$7.50	1	\$7.50
1/2" UniSeal	\$6.00	1	\$6.00
Total	\$134.34		\$134.97
Labour	\$12/Hour	10 Hours	\$120.00
Total			\$254.97

*****Assumptions*****

- Doesn't factor capital spending on equipment into calculations.
- Time varies based off stage of learning curve. 10 hours is an average for building a unit.
- Shipping costs for online versus retail channels not incorporated.
- Shipping costs for subscription models, to and from customers, not incorporated.

1.2 Costs For Add-Ons

Type of Cost	Cost Per Unit	# Of Units Per Month to Operate	Cost to Add To Monthly Subscription
Seeds (Variety Packs)	\$15	1	\$35
Nutrition Solutions (1L)	\$15	1	\$30
Growing Medium (Grodan GroCubes 25/ pack)	\$13.20	2	\$25
Total	\$43.20		\$90

*****Assumptions*****

- Other variants of these options available and at different price points. The above numbers represent averages.
- With time a greater variety of options will be available. This represents an initial estimate of what customers will require to grow from seed to harvest.

Product Line Overview

Product/Service	Price	COGS	Gross Margin
1. Subscriptions	\$500	\$254.97	96%
2. Direct Sales	\$600	\$254.97	135%

Product/Service	Price	COGS	Gross Margin
3. Add Ons	\$75	\$43.20	74%

***** Assumptions *****

- Churn rate of 10% so subscribers average 10 months of use.
- Representative of our horizontal growing system in development. Other products will expand product line and revenue model.

2.1 Subscription Model Beg Jan 1, 2018

Month	Units in Use	Revenue	Funds Required
1	5	\$250	\$1,274.85
2	14	\$700	\$3,569.58
3	29	\$1,450	\$7,394.13
4	47	\$2,350	\$11,983.59
5	62	\$3,100	\$15,808.14
6	86	\$4,300	\$21,927.42
7	112	\$5,600	\$28,556.64
8	141	\$7,050	\$35,950.77
9	172	\$8,600	\$43,854.84
10	217	\$10,850	\$55,328.49
11	250	\$12,500	\$63,742.50
12	280	\$14,000	\$71,391.60
YEAR 2	952	\$47,600	\$242,731.44
YEAR 3	2,104	\$105,200	\$536,456.88

***** Assumptions *****

- Churn Rate = 10% monthly churn rate.
- New subscribers = Grow linearly by 5 new subscribers per month i.e. 5, 10 15, 20 new subscribers added per month minus churn.
- Monthly Fee = \$50. Includes access to unit and add-ons seen in direct sales model below i.e nutrition, seeds, consumable equipment. \$50 is an estimated average, different amounts of equipment and add-ons will raise or lower that amount.
- Each new unit costs \$254.97 (1.2 for detailed breakdown).
- Funding required is cumulative. Revenue is per month. For instance in YEAR 3 \$536,456.88 is needed to buy all systems owned up until that point.

2.2 Direct Sales Model Beg Jan 1, 2018

Month	Units Sold	Add On Sales	Revenue	Funds Required
1	5	1	\$3,075.00	\$1,318.05
2	14	3	\$8,625.00	\$3,699.18
3	29	6	\$17,850.00	\$7,653.33
4	47	10	\$28,950.00	\$12,415.59
5	62	17	\$38,475.00	\$16,542.54
6	86	21	\$53,175.00	\$22,834.62
7	112	29	\$69,375.00	\$29,809.44
8	141	43	\$87,825.00	\$37,808.37
9	172	49	\$106,875.00	\$45,971.64
10	217	54	\$134,250.00	\$57,661.29
11	250	75	\$155,625.00	\$66,982.50
12	280	82	\$174,150.00	\$74,934.00
YEAR 2	952	278	\$592,050.00	\$254,741.04
YEAR 3	2,104	564	\$1,304,700.00	\$560,821.68

***** Assumptions *****

- Unit's sold mimic subscription rates for comparison of funding / revenues.
- Unit's cost \$600, and an average add on sale is \$75.
- 25% of new customers buy an add on package.
- Seasonality will demand for add ons vary by season (more indoor growing in winter?)
- 25% of customers will get all their add-ons from us rather than alternative supplier (See 1.3 above for breakdown)
- Units last longer than 3 years, so replacement purchasing not a factor yet.

3.0 Capital Spending

Cost Type	Before Month 1
Equipment	\$25,000
Tools	\$10,000
Tooling Design	\$10,000
Consulting/Outsourced Expertise	\$5,000
Total	\$50,000

*****Assumptions*****

- This model doesn't incorporate material costs. See 1.2 for COGS/Unit.
- In this 3 Year model overseas or outsourced manufacturing is not cost effective. By the end of Year 3 in the direct sales model (See 2.2) we've sold 2,104 units. Research thus far indicates most overseas manufacturers will require a MOQ (Minimum Order Quantity) of 50,000 100,000 units.

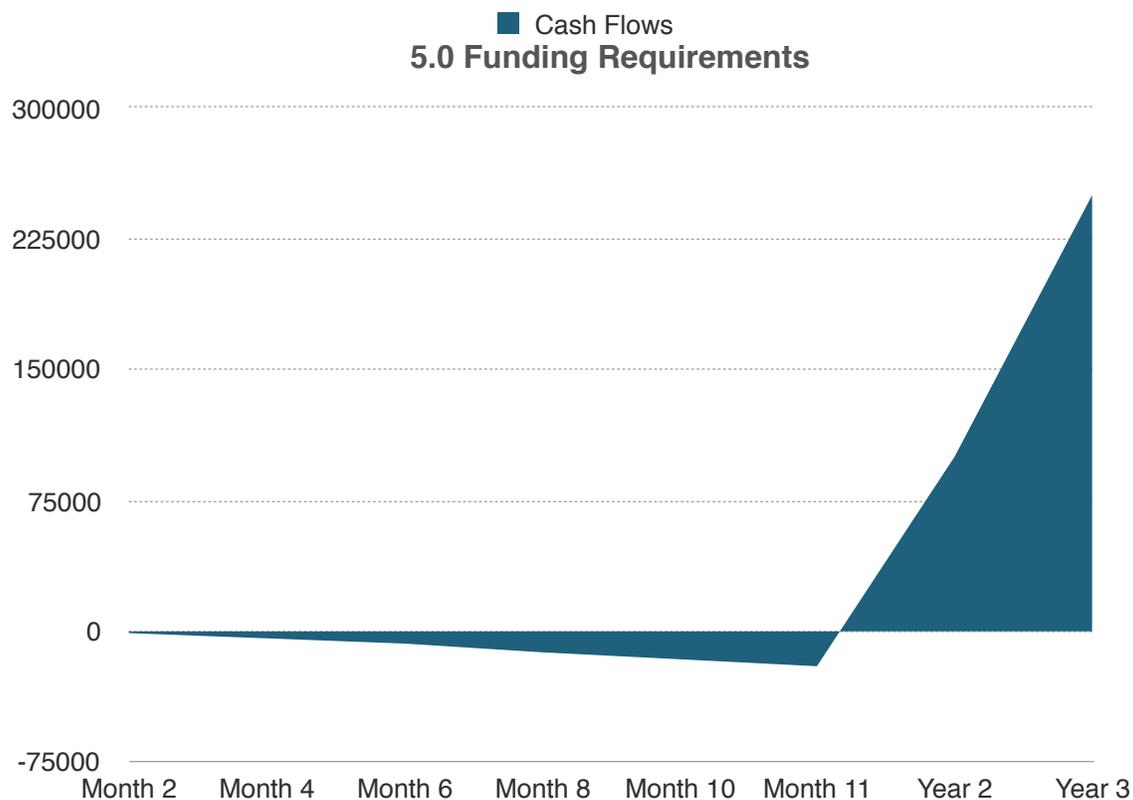
4.0 Operating Costs

Cost Type	Amount	Frequency	Total Per Year
Rent	\$1,500	Monthly	\$18,000
Staff	\$1,200	Weekly	\$62,400
Bank Charges	\$50	Monthly	\$2,600
Marketing/Advertising	\$1,000	Monthly	\$12,000
Travel Expenses	\$500	Monthly	\$6,000
Utilities	\$150	Monthly	\$1,800
Supplies	\$200	Monthly	\$2,400
Telephone/Internet	\$100	Monthly	\$1,200
Legal Fees	\$200	Monthly	\$2,400
Miscellaneous	\$400	Monthly	\$2,400
Total			\$111,200

*****Assumptions*****

- Rent not charged Year 1. Still incubated at this point.
- Staff: 10 People x 10 Hours / Week x \$12/Hour. 25% value Year 1 while incubated.
- Manufacturing labour incorporated into COGS.
- Marketing includes business documentation, graphics design, website maintenance.
- Travel expenses include trade shows, conferences, visiting customers/stakeholders.
- Legal fees primarily dedicated towards professional patenting assistance.

In order to the financial model built above, Growing Green has the below funding requirements.



Sources

Ideation: Friends, Family, Grants, Competitions, University Funding, Personal Funds

Iteration and Development: Pre-Selling, Competitions, Accelerators, Research Grants

Breakeven: Revenues, Angel Investment, Accelerators, BDC, OCE

Scaling: Venture Capital, Revenues, BDC, OCE

Impact Overview

Growing Green can be separated into three concurrent initiatives, each of which is essential to the ongoing vision of Growing Green to tackle the problem of oligarchies and their role in isolating our food systems and limiting food security for everyone, including urban dwellers.

These initiatives are; funding, development and marketing.

Funding

Our funding can be broken down into three stages. Stage 1 is roughly \$5000-\$10,000 and funds our development and research into prototype version 2 named "Roadster". Funding development, marketing and the associated initiatives are overseen by our CFO and these activities pull resources from development and marketing to structure proposals and

documentation. Stage 2 is \$25,000-\$50,000. This will fund further refinement and customer development with prototype 2.0 and the associated activities of the other concurrent initiatives. Stage 3 is where we move from grants, competitions and seed funding towards equity investing. At this point we've gotten a valuation in the hundreds to millions and we're ready to begin scaling from a position of strength. As per the Gantt chart below, we expect to reach this stage by July of 2018 though the development of our refined prototype "Green 3.0". Sourcing funding as mentioned is an ongoing initiative and can come from a variety of sources. Within the Ryerson ecosystem there are a wide variety of grants, both research and venture available, alongside pitch competitions and other events which offer funding as prizes. Outside the Ryerson ecosystem there are a number of public and private sources of funding available. Some options are the Ontario Centre for Excellence, Futurpreneur both of which offer 1:1 non-equity funding. Or private individuals who offer angel or venture capital in exchange for equity and/or the chance to involve themselves in the project and with the leadership team. Human support activities within the company like HR, pay and accounting will be overseen by the CFO until such time as they become resource intensive enough to require a distinct leadership chain separate from funding and finance.

Development

Development is on the outside the most important key activity Growing Green is engaged in. Without a product to sell our company is unable to fulfill its mission and thus can be deemed a failure. Development is overseen by our CTO and is a complex, multi-disciplinary practice given the complexity and technology spanning innovation we're pursuing. As Growing Green expands talent acquisition in this domain will likely prove the hardest as it requires the most significant specializations in certain domain expertise such as material science, electrical engineering and plant biology. Development like funding is an ongoing, concurrent initiative encompassing all the research and prototyping our development team pursues. We expect before our hard launch in July 2018 to do two separate soft launches with customer development and refinements each time. These refinements will likely feature into our business model as well as we come to understand our customers and their unique needs better and which of these markets makes the ideal beachhead for us to begin expanding our presence and capabilities. Development will likely have a direct hand in the planning and execution of our manufacturing capabilities both for the seed pod technology and system production. Their integral understanding of the unit design, and its unique stressors will leave them with the most direct knowledge to apply alongside funding to the building of our manufacturing.

Marketing

Marketing encompasses all the pre-selling, awareness and direct selling activities undergone within Growing Green. Anything that's customer facing is overseen by marketing which is

itself overseen by our CMO. Marketing during our Planning and Initial Development has the least presence as our activities at this stage are mostly happening “inside of the building”. As we progress to the Interim and Final Development Goals we’ll begin pursuing customer facing activities much more aggressively. Which will give the CMO and their sales and customer development teams a much more significant role in Growing Greens operations. Once we begin pre-selling units of our hard launch of prototype Green 3.0 in January with a much stronger push happening from March onward we’ll likely uptake more sales specific staff to support these endeavours. These teams would oversee activities like a Kickstarter or other crowdfunding campaigns alongside attending trade shows and other events to expand our brand awareness locally and amongst relevant industry contacts. Alongside the funding plan and the development of our refined, validated prototype we’ll be ready for a full hard launch in July of 2018. This is where marketing will begin selling units directly alongside testing the idea of leasing units to people to reduce the upfront financial burden and better sell the positive ROI of people growing their own food.

The leadership team consisting of the CFO, CTO and CMO will each be responsible for their own unique domain with guidance, and accountability going to the CEO. As our activities expand so to will the leadership branches and leadership team. This however will be the likely breakdown of the leadership team and hierarchy up until the July 2018 hard launch window.

The activities for the various Growing Green leadership branches have been grouped into several phases running up until our July 2018 hard launch window. The current uncertainty of the post launch window leaves effective planning for that period of time highly speculative. For that reason we’ve summarized everything past that point into one header “Post Launch”.

Executing the Model

Planning

During the planning phase of operations we’re laying the groundwork for what’s to come. These activities involve us searching for initial seed funding to fund the development of our next prototype ranging from \$5000-\$10,000. We’re finishing the setup of our company including the incorporating documents nationally and in Ontario, signing our shareholders agreement amongst the leadership team, and independent contractor agreements with our non equity staff. This phase will finish November 2018 once we’ve finished development of prototype 2.0.

Initial Development Goals

Once we've launched our second prototype we'll begin generating customer development reports using tools like empathy maps, user stories and interviews. This "hands on" experience outside of the building will be invaluable in validating the markets we're intending to enter and to better understanding our value proposition and problem/solution fit. Since development is iterative we'll be continuously applying the feedback received from our various stakeholders to the design of our pre-launch prototype Green 3.0. Alongside development we'll be pursuing our next round of funding of \$25,000-\$50,000 to speed up our pace of iteration and begin expanding our space and staff. This will give us the demonstrable traction to pursue partnerships with local entities like the DMZ, MarS, and research institutions like the Centre for Food Security. With these partnerships and some technology partnerships like with light supplier NanoLeaf, or indoor growing experts GrowRatio we'll gain access to innovative technologies which will give us an unfair advantage over our competition. This will all combine to give us the research capacities to create unique data on the viability of urban versus industrial rural growing in the form of the metrics ROI and TEE (Total Energy Equation).

Interim Development Goals

With our design of 3.0 coming along we'll begin being more effective at asking the "right" questions and getting actionable insights to incorporate into our designs. At this point we're approaching our build of Green 3.0. Each "prototype" will have multiple models and iterations of it but this will mark the transition from what we think the customer wants to what the customer has shown us through use and pre-sales that they do in fact want. We'll turn our attention towards the seed technology here as well. Until now we've been using basic growing technology and purchased seeds to do our testing and experiments. From here we'll begin pursuing the "pressed" soil blocks that we'll ideally incorporate into our hard launch. this technology which allows the distribution of seedlings on a much wider scale and the simplification of the initial stages of growing will be essential to our leasing business model. However at this stage we may not be capable of developing the capacity for its production or purchase and so it may be pushed to a later stage of development. In preparation for our retail hard launch we'll pursue IP protection of some kind. This will also set us up for any strategic partnerships or company sale down the road. Our expanded teams will be more aggressive about finding funding and customers and this will give us the resources and validation necessary to push us to our final pre-hard launch phase.

Final Development Goals

Using our insights so far we'll develop our final pre-launch prototype and confirm with customers that this is of value to them. With confirmation in hand we'll begin setting up for our initial manufacturing run. This push, handled by development, will likely utilize more capital than we've generated thus far. But with proven customer validation and market

traction we'll pursue our final "pre-revenue" funding round of \$100,000+. With our manufacturing capabilities set up and our product design finalized we'll utilize the market awareness and pre-sales generated thus far to hard launch and gain significant initial traction. This traction will allow us to reach the "break-even" point of our growth curve and to begin generating more revenue than our costs. Since we've taken on little debt thus far to fund operations we'll be profit positive and in a good position to pursue our post launch initiatives.

Post Launch

We're now revenue positive. This gives us the freedom and flexibility to pursue other strategic initiatives or partnerships that at this time seem viable. Our mission is ultimately food security through urban food growing and we've only to some extent accomplished this. From the pyramid approach outlined earlier we're now pursuing low volume/high cost food sources. This is not what the mass market needs and further development and refinement of our technologies is critical to achieving the overarching vision. With a standardized product offering and substantial brand capital we'll be uniquely suited to pursue this mission in whichever ways seem appropriate as we advance our operations. As established players in the market we'll also have more leverage to negotiate with these agriculture and biotechnology firms and to discuss how to partner rather than compete to both profit and push food security and individual health forward.

These phases and the work done up until this point are shown in the Gantt chart below

Gantt Chart

Project Workflow	2017			2018						
Activity	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul
Planning										
Seed Funding (\$5000).										
Finish Company Setup (Contracts, Incorporation).										
Develop Prototype 2.0 "Roadster".										
Initial Development Goals										
Finish Several Growth Cycles With Various Plant Types in Prototype 2.0.										

Project Workflow	2017			2018						
Activity	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul
Pursue Local Partnerships (Ryerson Eats, DMZ, MarS, Rye Rooftop, Not For Profits in Poverty and Food Health).										
Pursue Technology Partnerships (NanoLeaf, GrowRatio).										
Research and Quantify ROI and Total Energy Equation of Urban Versus Rural Food Current and Projected With Our Systems.										
Interim Development Goals										
Pursue Customer Development With Our Prototypes. Prepare User Case Studies.										
Source Seed Pods; Either Pressed (Ideal) or Germinated Before Delivery (Compromise).										
Generate Attention For Project (Ryerson Today, TO Startup Scene).										
Expand Team To Encompass More Complementary Skills. (Engineering, Manufacturing)										
Pursue Patent For IP Developed To This Point.										
Presell For Hard Launch (Kickstarter, Trade Shows, Direct, Ecommerce, Social).										
Grants and Seed Funding \$25,000+										
Final Development Goals										
Utilize Customer Development Insights to Prepare Product For Launch.										
Arrange/Set Up Manufacturing For Initial Production Run.										
Acquire Enough Quantity Of Seed Pods For Launch Either Internally or Externally.										
Angel or Other More Substantial Investment. \$100,000+										
Hard Launch Product #1										
After Launch										

Project Workflow	2017			2018						
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul
Make Industry Contracts and Partnerships.										
Hard Launch. Revenue Covers Cost.										
Expand Product Line. Scale Development.										

Risk Analysis

There are some key risk to highlight in Growing Green, and the below points explore those risks and what we're doing to offset them.

Technology Failure

There exist today a substantial number of urban growing systems which do an adequate job of growing food. They are much less efficient than industrial agriculture, usually prohibitively expensive and/or have significant design trade-offs, usually are bulky, require significant amounts of energy and in the case of aquaponics aren't more water efficient. Further if firms don't find quality suppliers the "food miles" equivalent that the growing system consists of may not be an improvement over the food being grown externally and transported.

The risk is that we continue to perpetuate this status quo. That our development team is unable to create the 10x improvement on existing solutions that will allow us to get the improvement on ROI and TEE that we need to generate mass market interest and penetration.

Manufacturing Failure

Every hardware company must simultaneously manage the design of their products (whether that's outsourced or done internally is a different strategic challenge). For Growing Green since we intend to do design and systems manufacturing internally even if our technology proves to be a 10x improvement over existing designs our capabilities to implement sweeping change to food security and individual procurement will be limited. This is a better alternative however to a technology failure as we'll be able to either; outsource manufacturing and lower margins and/or compromise quality, or licence or sell IP and pivot our business model towards research and design generation and not the physical production of units for sale.

Funding Runs Out

Our companies capital requirements will quickly increase as we scale design and production operations. Within 1 year if we aren't receiving the capital infusions we require we will stagnate and not get the innovation or scale we need to fulfill our mission. Current capital acquirement planning should says this risk should be mitigated.

People Aren't Willing to Adapt

Growing Green can only be considered a success if we fulfill our larger vision. Anything short of that, even if fiscally rewarding, is still considered a failure. For that reason even if we do innovate technologically and successfully bring our initial product to market we need significant market adoption and widespread acceptance to be considered successful. If at any stage of our pyramidal approach to market targeting we fail to get widespread adoption our traction will halt and our growth as a firm will stall.

At this point its likely we'll still be a profitable company within whatever niche we've carved out. We'll have revenues covering and exceeding costs and an established first mover advantage which should give us at least a few years of operational power until we face substantial ongoing competition. For that reason this could be considered a failure of vision or mission and not necessarily a financial one.

No Sustainable Competitive Advantage

Assuming we don't face any technological or manufacturing failures, and then receive the scaling funding infusions we require as we require them then we'll be able to launch successfully in July of 2018. Once we start getting traction in the market and wider consumer awareness we'll have also proven the potential of a somewhat untapped market and copycats will be quick to follow.

If through a failure of intellectual property protection, proprietary design, and industry partnerships we can't keep our competition at bay it's possible a firm with more resources will be able to quickly acquire a competitor or design something in house and use their larger marketing and operational abilities/ clout to outcompete and crush us. Or as is common, they may seek to acquire us holding the aforementioned alternative over our heads to force a sale before we've reached our full market potential.

Government or Regulatory Prevention

All other failures being mitigated, we'll be a profitable firm in a blue ocean market pushing forward a positive social change. This being the case, the stakeholders we're displacing like rural farmers and industrial agriculture firms may say something about it. If as mentioned

earlier they can't directly compete they may entice governments to regulate us somehow and thus prevent our adoption and social change. Whether that's by limiting peoples production volume or regulating water, raw materials or some input we require or making our technology illegal or uncompetitive through tariffs it would cripple our operations and thus cause us to fail our stated mission.

Conclusion

Growing Green is an exciting and viable opportunity to contribute to a societal trend valuing sustainability and ethics in our food production and distribution systems. Our unique approach combining innovative design tailored to the needs of our stakeholders with a prosocial mission that will potentially benefit food insecure individuals internationally. If we're successful we'll both create a viable business that manufactures and distributes hydroponic systems and the associated consumables and equipment while also putting a dent into the oligopoly of industrial agriculture which has been using unsustainable farming practices for decades on the backs of an agribusiness and agrochemical industry.

Our work shifting the excess capacity to urban environments through data tracking, industrial and consumer urban growing and a deeper individual awareness of the origins of our food and why it's sustainable production is so important to every member of any society since its impacts cascade so heavily. Our approach of design thinking with skilled technical backgrounds allows us to ideate and iterate quickly to find the best way of initially approaching the market with our beachhead and then of winning the market by scaling the most heavily tested business models with skilled execution based off our leadership teams experience and ability.

We've explored all the different facets related to executing our model from staging and organizing our funding for the next several development stages spanning the next 3 years to understanding our development process and the specifics of our build plan. We understand how to track our success and how to work with our initial customers to build out our platform and service model and optimize our sales and distribution process. Taken as a whole Growing Green is suited to take the market we're entering and create huge impacts as a result.

Thank you for reading. If you have any feedback or insights into our model or hypotheses - let us know and let's collectively advance the dialogue around food security.

-Andrew and the Growing Green Team.

