

UPAG

A DECENTRALIZED FUTURE FOR FOOD
Indoor Farming, the Internet of Things and
Blockchain Technology

White Paper

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Our Vision and Commitment

UPAG is committed to establishing urban agriculture in urban communities with farm to-table fresh food traceability using the IoT Blockchain for the urban & agtech ecosystem. UPAG is dedicated to improving food safety, fighting off corruption, supporting fair trade, and building trust between the food supply chain companies, consumers and authorities in emerging markets.

We are dedicated to the task of adapting our cities to make them sustainably and equitably resilient in times of peaking resources, economic chaos and ecologically catastrophic climate change. Some are closed minded to such ideas, and others think in terms of responsibility to future generations, and some believe the sky is going to fall at any moment. What really matters is not our personal opinions, but rather that we are all committed to finding and promoting potential solutions and to do so with alacrity, while fostering a sense of urgency and crucially, achievability at every turn.

We get caught up in our everyday lives, our social habits, systems, patterns and forces (laws, prices, ownerships, debts, etc) which makes it easier for everyone to continue with business as usual. We have proven that humankind's existence on earth has shown an astonishing capacity to adapt. However, we believe that with the tools available to us today through science, technology, inventiveness, resourcefulness, politics, and so on, can help to overcome the challenges facing us with food sustainability, obesity, chronic illness and disease and hunger among the poor.

Introduction

More people live in urban than in rural areas. It is expected that the current world population of 7 billion will grow to 9 billion by 2050, of which 6.5 billion will be living in urban areas. This means that in the next few decades the urban population will grow by 3 billion people. Most people living in urban areas are almost entirely dependent on food systems for sustenance. Few, if any, urban dwellers grow enough of their own produce to be self-sufficient and, as a result, centralized food systems have replaced the old community-centered model of food production and food distribution. This has created a fragile globalized system that brings into question food security across the planet.

Farming for the most part is generally associated with rural areas and is a stranger to most who live in urban areas. When you think of farms, you think of the country, not the city. This is rooted in the historical process of urbanization, which led to certain issues being defined as essentially urban and other issues as essentially rural. Food and agriculture are generally considered to be typical rural issues. We find it a fair assessment to say that there is a serious disconnect between people, agriculture and the food demands in urban areas.

Being frank, urban residents especially in most Western countries, do not even realize that they take food for granted. Most do not stop and think how their food gets to them in the city, or that millions of meals must be produced, imported, sold, cooked, eaten and disposed of, and that this process must happen every single day for every single city on earth.

Our current food system continues to have many implications on our globalized society, but, perhaps the most significant, is the fact that the production and distribution of food have become so far removed from the consumer that most people have almost no idea

where their food comes from, how their food is grown, how it is transported or who the farmer is that is growing their food. This, paired with a distribution system riddled with negative externalities that consistently go unaccounted for along the supply chain, has resulted in many fears around how we are going to feed 9 billion people by the year 2050 of which more than 70 percent of people will be living in urban areas*.

It also brings into question the nutritional content of the food we are currently consuming as it is becoming increasingly clear that since the industrial revolution every generation has had to deal with the declining nutritional content of their food. Millennial's have less access to nutritionally dense produce than boomers and that trend seems to be continuing exponentially. If nothing changes, our children will be worse off in terms of the nutritional value of their food than we are—in a world where technology is arguably driving evolution—it is important that we remember that the fundamental aspect our existence is sustenance. Food has been the underlying driver of radical changes in the human story since the very beginning and it is now, in 2018, that the entire food system—at every level—is ripe for change. Our Roots believes that the next agricultural revolution will be a digital revolution where agriculture will become information driven and the Internet of Things (IoT)* will help bring radical changes to the current food system.

Our ultimate target is the trillion-dollar U.S. food and agriculture industry (roughly 6% of the GDP). American farm outputs alone total roughly 1% of the GDP, or over \$130 billion. Corn, wheat and soybeans routinely top the rankings of U.S. production numbers, and California - which produces over 80% of the world's almonds, and some \$6 billion worth of grapes annually - is the largest agricultural state in the country. (Globally, food and agribusiness comprise a \$5 trillion industry.)

We are spearheading our efforts of product maturation in the urban farming industry, where blockchain-enabled transparency, and the UPAG IoT platform, is most needed. Through the use of the turn-key UPAG platform, every business-to-business (B2B) urban farming professional will benefit from the IoT and blockchain capabilities with minimal additional expense, special

expertise or major disruption to their day to day operations. UPAG brings a fresh, new, approach to an exciting industry where relationships take years to develop and the extent of control is limited. As the UPAG solution fully matures in the urban farming market, we will gradually tackle adjacent crop sectors (e.g. indoor, cannabis farming), and then move on to larger sectors, to expand market penetration throughout the entire agriculture ecosystem.

Market Overview

The global vertical farming market is anticipated to reach USD 9.9 billion by 2025, according to a new report by Grand View Research, Inc. The increased use of Internet of Things (IoT) sensors, for producing crops, is likely to spur the market demand over the forecast period. The information obtained from the sensors is stored on the cloud and analyzed to perform the required actions. The growing automation in agriculture and increasing use of big data & predictive analytics, for maximizing yields, are also likely to drive the market.

Genetically modified organisms and environmental & health effects of pesticides & other non-natural substances that are used for increasing agricultural production have encouraged the consumers to adopt organic foods.

Problems That Urban Regions Face

- ✦ The study of chains and networks of food provisioning is confined to rural and regional development studies, thereby missing that the city is the space, place and scale where demand is greatest for food products including the 'alternative' products, organics, local, origin labelled, etc.
- ✦ Urban food security failure is seen as a production failure instead of a distribution and access failure and this has constrained much needed interventions in the realm of urban food security.
- ✦ The role of food in sustainable urban development as well as the role of cities as food system innovators has been promoted as a non-urban issue.

This white paper addresses the shortcomings by providing theoretical explorations about the role of food in urban development, planning and design. In particular, how each of us can play a central role in our food sustainability in urban and regional development.

Food systems are complex, and the evidence that food systems need to change is mounting, and if cities are to expand as predicted, and residents are to remain connected to seasonal cycles, the outdoors, and a sensual experience of the world, then the spatial implications of new food paradigms need to be considered and must be thought of as an essential infrastructure.

Urban Food Readiness

The key challenge for decades to come is how to feed the growing urban world population in a way that is socially, economically and environmentally sustainable and ethically sound. Living and eating in cities is inextricably linked to globalized chains of food production, processing and distribution. This has brought many benefits to the urban population: food is usually available at relatively low prices and most products are available year-round.

- ↑ Family farm incomes have increasingly declined as the mainstream food provisions has changed from a supply to a demand driven food supply chain. There has been a shift in power from primary production to the retail sector, which has become the main outlet for processed as well as fresh food products.
- ↑ There is a lack of interest in farming among youth which is a serious threat to global food security.
- ↑ The intensive nature of food production has taken place at the expense of contributing to environment pollutions.
 - Emission of nitrate to groundwater
 - Ammonia to the air
 - Phosphate saturation of soils

- Emission of pesticide residues to the air and to ground and surface water
- ✔ A large part of the food that urban dwellers buy is not consumed and ends up as waste. Nearly 38% of all food purchased is thrown away.
- ✔ Increased use of processed food products has resulted in a rapid increase of food packaging that has to be disposed of after food consumption.
- ✔ Food production, processing, distribution, storing and sales have become heavily dependent on fossil fuels and contributes significantly to greenhouse gas emissions and to climate change.
- ✔ Most of the world's fresh water is used for the production of food.
- ✔ Large parts of the Amazon rainforest disappear annually as it is converted into agricultural land for the production of soy or biofuels.
- ✔ There is a massive loss in the nutritional value of food created by the food processing industry by adding colorants and artificial flavors to a standardized primary product.
- ✔ As a result of the growing world population, the competition over agriculture land to meet the expansion of developing cities is ever increasing.
- ✔ Soil is a vital resource to produce the food that we consume and to produce the feed and fodder for the animals that we consume. Soil degradation is a serious problem where many soils across the globe are not well managed which could lead to the loss of 30% of the agriculture land that is farmed by 2050.
- ✔ Malnutrition and Obesity are a growing epidemic and a major emerging health concern. Not only do both cause chronic illness and disease, but it is responsible for the largest portion of medical spending. Malnutrition and Obesity are more prevalent in your urban regions, due to a lack of supermarket and grocery stores, and an abundance of fast food joints and snack shops on virtually every urban corner.

While some might believe that these are single issues and have nothing to do with each other, the truth is that the above-mentioned challenges are related and do need to be addressed as related and mutually reinforcing challenges. If we stick to

business as usual and focus on these as single issues, urban families and their health are headed for catastrophe.

We are of the belief that together, farmers, consumers and retailers can collectively work together to develop new, better and safer, alternative urban food development.

Food Quality and Awareness

People are becoming more aware of the lack of nutritional value in the food that we are consuming and are waking up to the realization that the majority of chronic illnesses and diseases that afflict nearly 40% of the population lead back to the foods we have been consuming that began being introduced to the public in the early 1990's.

The new concerns about food quality, safety, nutrition, food security and carbon food prints is seeing a new food geography developing as the awareness leads to an emergence of farm shops, farmers' markets, CSA boxes, community supported agriculture and the demand for NON-GMO foods.

Through awareness efforts, people are realizing that food is more than a commodity or a substance containing calories, vitamins, proteins and nutrients that we need to eat in order to survive; it is a product and a process that links environmental pollution, pesticides and fertilizer, transportation, environmental degradation; and a loss of environmental quality, social, equality, public health, employment and education. Food is more than just something we eat.

The Great Food Divide

Our landscapes and cities were shaped by food. Our daily routines revolve around it, our politics and economies are driven by it, our identities are inseparable from it and our survival depends on it.

In order to act effectively, we need a vision of the life we are trying to create, save or adapt. Since we all must eat to survive, the question of how we should eat

approximates to that of how we should live. Through food, we can build a society in which food-based values are commonly shared and practiced.

There was a time when city and country were socially, physically and conceptually bound together. If you lived in the city, you knew where your food was coming from. It was coming from the country to which you were socially, physically and conceptually bound. Today however, most of us live hundreds, if not thousands of miles, from the sources that feed us. We know very little about the food industry...nor do we have much, if any, control over it.

Civilization depends on the balance between city and country, and today we have small and medium-scale farmers being driven off the land by the spread of global agribusiness, a system in which only the largest, most efficient farms can survive, making rural life untenable.

Connecting Producers to Consumers

Today the global food system has producers who channel food to the supermarkets, which in turn, feeds consumers. The global food system exerts a stranglehold over the entire food chain. The beginning to the end of the corporate hands in our food system is for consumers to forge direct relationships with those who grow their own food. Bypassing monopolistic corporations and democratizing food trade will open up new possibilities for urban and rural communities, with entirely different systems emerging.

There are social and ecological benefits of having more, rather than fewer, people working in food, particularly producers. Life as a small producer can be a rich and rewarding one. To make this happen, the rest of us must invest food with its proper value, by becoming co-producers.

In order to develop an ethical, sustainable food system, people need to understand the full effects of their diet. With the knowledge of the food you are currently consuming,

compared to the food you could and should be consuming, will you be prepared to adjust the way you eat...as well as about and where and how you buy your food.

Foods Transformative Power

Placing food back at the heart of society will bring about a major cultural shift, suggesting new political and economic structures, new planning models, a new social order. The result will be a move away from neo-liberalism and towards community-based trade, as well as a move away from unchecked urbanization towards urban-rural regionalism. A truly food-based society would look radically different from the way it is today. This is a major task and undertaking, yet it is one that we must face.

Global agriculture-food will no doubt be with us for years to come, however, that does not stop us from the many paths that are open to us: informing ourselves about food, teaching others, designing and planning with food in mind, demanding action from politicians, becoming co-producers, growing our own, cooking more, eating better, and so on. Nothing happens overnight, but by working together, we can hasten its end.

Chronic Illness, Disease & Death Associated with Foods We Eat

According to the World Health Organization, 10% of us fall ill with a food-borne disease each year, causing 400,000 deaths. Food frauds around the world cost \$40 billion annually. Most food frauds could be prevented by tracking livestock and food from the farm to the retailer. But connecting thousands of companies to exchange food information on a global scale is a huge task.

Over 130 million Americans are suffering from chronic illnesses. 70% of American deaths are caused by chronic diseases each year. Diabetes, heart disease, high blood pressure, cancer and high cholesterol, just to name a few. Treating the causes of these epidemic chronic disease and illnesses are not going to be fixed by a pill or a procedure, but by treating the causes of these epidemic chronic disease and illnesses.

We all know that what you eat causes chronic illness and diseases, and what you eat can also reverse chronic illness and disease. What most don't know is that these chronic illnesses and diseases have a great chance of reversing themselves. The problem with the American diet is that we eat a variety of foods, but the foods we are eating are mostly bad. To a degree genetics can play a role, it can be the smoking gun, but lifestyle and diet is the trigger.

Diet can be directly attributed to chronic illnesses and disease. There are civilizations and cultures where there is no cardiovascular disease, and this is not because of a genetic gift. When people move from a low risk area country of a certain disease, to a high-risk area country of that same disease, they get the risk of the disease to the country in which they move without changing their genes. If a Japanese person moves to the United States and they adopt to the American diet, all of a sudden, the breast cancer, colon cancer and heart disease rates start to increase within a generation or two of their adopting to the American diet. This tells us that it is not the genes, but rather the expression of the genes which nutrition directly controls.

In America, more than 20 million people now have diabetes, and a new born baby has a 33% chance of becoming a diabetic in his or her lifetime. Americans today are facing an epidemic of chronic illness, which is now the biggest single driver of medical costs. The challenge of effectively caring for the growing numbers of Americans suffering with these conditions, particularly as they age into retirement, is enormous. As devastating as health statistics have become, the answer to significantly reversing and changing this epidemic is extremely simple and sensible. The difficult challenge is helping people to understand and take their health and quality of life and longevity of life serious right away and not putting it off until the road to health may be too late. The answer is most times not on a prescription pad or bottle, but simply the food you are putting into your body.

It is the mission, vision and passion of UPAG to develop effective urban farming leaders, increase public knowledge in order to transform urban agriculture into a major instrument against hunger and poverty. To create a culture and systems to use resources more

efficiently; and to aggressively attack and end hunger and poverty where devaluated currencies, weakened purchasing power, frozen wages, retrenched public service and formal employment, removed subsidies on food and other basic needs, have curtailed the capacity of both the urban poor and middle class to purchase all of the food which they need. In 1990, households in nearly half of the largest cities in low income countries were already spending on average 50-80 percent of their income on food (PCC, 1990). This figure was higher for low-income households; even so, their purchases often have been found to not cover daily minimum food and health requirements. Poverty and malnutrition are becoming increasingly urban. More of the rural poor are migrating to the cities, more people in cities are being born to poor families, and more urban middle class residents are gravitating around the poverty line.

Problem with Lack of Food Transparency

There is much that the public does not know about the food they consume, where it came from, how far it traveled to reach them, and whether it was synthetically grown with GMO seeds. Currently there is no regulation that requires labeling of GMO foods. Twenty-four years ago, the first genetically modified seeds hit the market, and since then, ethical, political, legal, environmental, economic and social concerns for the technology have emerged. Everyone needs to be a concerned eater and understand what GMOs are, whether they are they in your food, are they safe; as well as understanding the major blind spots in federal regulation and oversight of the FDA, USDA and EPA, which has limited the government's ability to address critical environmental and health safety concerns.

People do not have access to information about the food they purchase and consume because proper labeling is not required. It is just assumed that because it's sold on grocery store shelves, it's safe. Information which is very vital to our health, safety and welfare. Most people do not know what GMO means or that it is in virtually every food purchased in the store.

Most have heard the powerful narrative being told about the world's food system, whether it be in classrooms, boardrooms, foundations, or the halls of the governments around the world. It goes something like this: The world's population will grow to 9 billion by mid-century, putting substantial demands on the planet's food supply. To meet these growing demands, we will need to grow almost twice as much food by 2050 as we do today. This means that we need to use genetically modified crops and other advanced technologies to produce this additional food. It's a race to feed the world, and we had better get started. If you listen to it, it makes sense, the problem is, it's mostly based on flawed assumptions.

1. Simply stated, the math does not add up – there are 7 billion people on earth today, 2 billion more people in the next 32 years is roughly a 25% increase of the population. If those 2 billion people eat the average diet, that would mean that we need roughly 25% more food globally.
2. Roughly one third of the food produced in the world for human consumption every year – approximately 1.3 billion tons – gets lost or wasted.
3. Food losses and waste amount to roughly \$690 Billion USD in industrialized countries and \$310 Billion in developing countries.
4. Global quantitative food losses and waste per year are roughly 30% for cereals; 40-50% for root crops, fruits and vegetables; and 20% for oil seeds, meat and dairy; and 35% for fish. When you average out the wasted food there is a 33.75% surplus of food.
5. Just in the United States alone, Americans waste an unfathomable amount of food. In fact, according to a Guardian report roughly 50 percent of all produce in the United States is thrown away – some 60 million tons or \$160 billion worth of produce annually.

Based solely on these facts, it's clear that we have a more serious problem than each of us can play a role in to change as there is actually a surplus of food and certainly not a shortage, but instead a lack of appreciation of the foods we eat and a misguided, or lack of value placed on the food we eat.

The biggest argument that is made in defense of GMO foods is that in order to be prepared for the shortage of food in the future, a synthetic food needed to be scientifically created that is pest resistant, that grew faster and had a longer shelf life.

We will not know the extent of the problems that this synthetically, genetically modified food will have on our overall health and longevity of life as it is still being tested on us as we continue to buy, prepare and consume this form of food that has no regulation or labeling, meaning that we also do not know what or how much of this form of food we intake on a daily or annual basis.

Promoting health and reducing chronic disease risk associated with diet and weight in all age groups through nutrition education and prevention efforts have become an important health approach as people face many new dietary challenges and are establishing health behaviors. Alarmingly, there is a lack of farming sophistication, business knowledge, and leverage against much larger buyers, as well as corrupt middlemen and government officials; developing world farmers receive only a tiny share of the ultimate value of their crops. For some farmers, that could be one percent of retail value. However, blockchain holds the promise to provide transparency to inefficient and corrupt business practices, leading to greater prosperity for disadvantaged agricultural farmers.

GMO - What is Genetically Modified Organisms

The company Monsanto is responsible for engineering GMOs. GMOs are considered beneficial by those who make them. They say the plants are stronger, taste better, resist bugs and disease better. GMOs are patentable; thus, many farmers have been sued because the GMOs cross-pollinated, and now the organic farmer's seeds have genetic markers in them. Genetically modified foods or GM foods, also known as genetically engineered foods or bioengineered foods, are food produced from organisms that have had change introduced into their DNA using methods of "genetic engineering" or "genetic modification"

Commercial sale of genetically modified foods began 23 years ago in 1994. The U.S. now ranks 42nd in life expectancy down from 11th 20 years ago. There are ongoing public concerns related to food safety, regulation, labeling, environmental impact, and the research methods used. Although the GMO patent holders say that these seeds and plants are perfectly healthy to humans and animals, GMOs are not natural occurrences of nature and are engineered by man, in ways that nature could never do by accident because they are cross-species of the genes.

In the U.S. it is not required to tell consumers if the food they eat have GMOs or not, no labeling is required as is required for nearly all other consumables. Some of this chaos, which could be interpreted as confusion, may be related to the three different government agencies that have jurisdiction over GM foods.

EPA Evaluates If GMO Plants Are Safe for The Environment

The EPA conduct risk assessment studies that could potentially cause harm to human health and the environment. The EPA sets strict limits on the amount of pesticides that can be applied to crops during growth and production. GMOs however, have been exempt from these strict regulations because the EPA has not established regulations for the donor organism B.t corn, which is a naturally occurring soil bacterium; *Bacillus thuringiensis* (the gene of interest produces a protein that kills Lepidoptera larvae), in particular, European corn borer. This protein is called the Bt delta endotoxin.

USDA Evaluates If GM Plants Are Safe to Grow

The USDA has many internal divisions that share responsibility for assessing GM foods. The USDA has the power to impose quarantines on problem plants, and can destroy plants cultivated in violation of the USDA regulations. Many GM plants do not require USDA permits from APHIS. A GM plant does not require a permit if it meets these 6 criteria: 1) the plant is not a noxious weed; 2) the genetic material introduced into the GM plant is stably integrated into the plant's own genome; 3) the function of the introduced

gene is known and does not cause plant disease; 4) the GM plant is not toxic to non-target organisms; 5) the introduced gene will not cause the creation of new plant viruses; and 6) the GM plant cannot contain genetic material from animal or human pathogens.²

The FDA Evaluates Whether the GM Plant Is Safe to Eat

The Food and Drug Administration (FDA) is responsible for assuring that foods sold in the United States are safe, wholesome, and properly labeled. This applies to foods produced domestically, as well as foods from foreign countries. The Federal Food, Drug, and Cosmetic Act (FD&C Act) and the Fair Packaging and Labeling Act are the Federal laws governing food products under FDA's jurisdiction.³

Currently, there is NO regulation that mandates GM food products, whole foods or otherwise, be approved by the FDA before being released for commercialization. The FDA asserts that the agency currently does not have the time, money, or resources to carry out exhaustive health and safety studies of every proposed GM food product. Moreover, the FDA policy as it exists today does not allow for this type of intervention.

The following is an excerpt from Chapter 2, "Seedy Business: What Big Food is hiding with its slick PR campaign on GMOs," by Gary Ruskin, co-director of the public watchdog group US Right to Know.⁴

² <http://www.aphis.usda.gov:80/bbep/bp/7cfr340>

³ <https://www.fda.gov/downloads/food/guidanceregulation/ucm265446.pdf>

⁴ <https://www.usrtk.org/seedybusiness.pdf>

In recent testimony before Congress, the FDA stated that it is “confident that the GE foods in the U.S. marketplace today are as safe as their conventional counterparts.”⁵

However, the FDA does not itself test whether genetically engineered foods are safe. The FDA has repeatedly made this clear. As Jason Dietz, a policy analyst at the FDA explains about genetically engineered food: “It’s the manufacturer’s responsibility to ensure that the product is safe.”⁶

Nor does the FDA require independent pre-market safety testing for genetically engineered food. As a matter of practice, the agrichemical companies submit their own studies to the FDA as part of a voluntary “consultation.” Moreover, the FDA does not require the companies to submit full and complete information about these studies. Rather, as the FDA has testified, “After the studies are completed, a summary of the data and information on the safety and nutritional assessment are provided to the FDA for review.”

The FDA does not see the complete data and studies as a problem, according to a Biotechnology and Genetic Engineering Reviews article by William Freese and David Schubert: The FDA never sees the methodological details, but rather only limited data, and the conclusions companies have drawn from its own research. The FDA *does not* require the submission of this data. And, in fact, companies have failed to comply with FDA requests for data beyond that which they submitted initially. Without test protocols or other important data, the FDA is unable to identify unintentional mistakes, errors in data interpretation, or intentional deception.

At the end of the consultation, the FDA issues a letter ending the consultation. Here is a typical response from the FDA, in its letter to Monsanto about its MON 810 Bt corn:

⁵ https://usrtk.org/the-fda-does-not-test-whether-gmos-are-safe/#_ftn1

⁶ <https://grist.org/food/the-gm-safety-dance-whats-rule-and-whats-real/>

Based on the safety and nutritional assessment you have conducted, it is our understanding that Monsanto has concluded that corn products derived from this new variety are not materially different in composition, safety, and other relevant parameters from corn currently on the market, and that the genetically modified corn does not raise issues that would require premarket review or approval by FDA.... as you are aware, it is Monsanto's responsibility to ensure that foods marketed by the firm are safe, wholesome and in compliance with all applicable legal and regulatory requirements. This testing regime is insufficient for several other reasons.

Most of the animal safety testing prepared for the FDA is merely short-term. A study in the International Journal of Biological Sciences summarizes the typical testing regime: "The most detailed regulatory tests on the GMOs are three-month long feeding trials of laboratory rats, which are biochemically assessed." Such tests may well be too brief in duration to uncover pathologies that develop more slowly, such as many types of organ damage, endocrine disturbances and cancer.⁷

There are too few peer-reviewed studies on the health risks of genetically engineered food. In their 2004 article in *Biotechnology and Genetic Engineering Reviews*, William Freese and David Schubert wrote that, "Published, peer-reviewed studies, particularly in the area of potential human health impacts, are rare. For instance, the EPA's human health assessment of B.t crops cites 22 unpublished corporate studies, with initially only one ancillary literature citation."⁸ Similarly, a 2014 review in *Environment International* of 21 studies of the effects of genetically engineered foods on the digestive tracts of rats found an "incomplete picture" regarding "the toxicity (and safety) of GM products consumed by humans and animals."⁹ In other words, it concludes that there is not enough evidence to say that genetically engineered foods are safe to eat.

⁷ <http://www.ijbs.com/v06p0590.htm>

⁸ <http://www.centerforfoodsafety.org/files/bger-paper.pdf>

⁹ <https://www.sciencedirect.com/science/article/pii/S0160412014002669>

Of course, the agrichemical companies say their genetically engineered foods are safe. What's curious about this is that they have enough money to carry out independent pre-market and post-market testing of the health risks of their products. Such testing would be an easy way to put to rest any questions about health risks. But they don't. Why not? Also, the agrichemical industry could lobby for federal laws or rules requiring pre-market and post-market safety testing for genetically engineered foods. And they would likely prevail. They haven't done that either. Why not? It suggests they don't want to know the answers, or they don't want us to know the answers. Or both. This doesn't inspire trust.

So, the FDA states that it is "confident" about the safety of GMOs currently in the marketplace. But it does not itself conduct safety testing on GMOs. It does not sponsor independent safety testing. It does not require independent safety testing. It does not require long-term safety testing, to uncover ill effects that have delayed onset. It does not have access to the full data and content of all industry safety testing. And it does not require post-market epidemiological testing. Without such testing, and full access to industry data, the FDA cannot credibly decree, declare or certify that GMOs are safe. Research shows that many GMOs are linked to organ damage, obesity, diabetes and much more.¹⁰

Advantages of Genetically Modified Foods

Insect Resistance

GMO foods have been modified to make them more resistant to insects and other pests by adding a toxic bacterium claimed to be safe for human use to crops to repel insects. This means the amount of pesticide chemicals used on plants are reduced, so the exposure to dangerous pesticides are also reduced.

¹⁰ <https://www.lcps.org/cms/lib4/VA01000195/Centricity/Domain/4996/GMO%20edited.pdf>

Larger Crop Production

It has been easier to raise crops that are classified as GMO because the crops have a stronger ability to resist pests.

Environmental Protection

GM crops “may” help with reducing greenhouse gas emissions, soil erosion and environmental pollution, contributing to the preservation of better water and air quality, which can indirectly benefit every person’s well-being.

Vitamin Enriched

Some GMO foods have been engineered to become more nutritious in terms of vitamin or mineral content.

Less Deforestation

GM animals and crops would decrease carbon dioxide in the atmosphere, which in turn, would slow global warming.

New Products

New crops are being developed to be grown in extreme dry or freezing climate environments.

Disadvantages of Genetically Modified Foods

Allergic Reaction & Unknown Effects on Human Health

Introducing a gene into a plant may create a new allergen or cause an allergic reaction in susceptible individuals. There is a growing concern that introducing foreign genes into

food plants may have an unexpected and negative impact on human health. One study claims that there were appreciable differences in the intestines of rats fed GM potatoes and rats fed unmodified potatoes. On the whole, with the exception of possible allergens, scientists believe that GM foods do not present a risk to human health.¹¹

Not 100% Environmentally Friendly

GM foods contain several kinds of substances that are not yet proven to be environmentally safe and these substances remain hidden to the public.

Lower Level of Biodiversity

When we remove certain pests that are harmful to crops, we could also be removing a food source for a certain species to survive. GM crops could prove toxic to some organisms, which can lead to their reduced numbers, or even extinction.

Decreased Antibiotic Efficacy

According to the Iowa State University, some genetically modified foods have antibiotic features that are built into them, making them resistant or immune to viruses or diseases. When we eat them, these antibiotic markers will persist in our body and will render actual antibiotic medications less effective. The university also warns that ingestion of these foods and regular exposure to antibiotics may contribute to the reduced effectiveness of antibiotic drugs, as noticed in hospitals across the planet.

Unusual Taste

¹¹ <https://biomed.brown.edu/arise/resources/docs/GM%20foods%20review.pdf>

Genetically modified foods are observed to have unnatural tastes compared with the ordinary foods that are sold on the market. This could be the result of the substances that were added to their composition.

Not Safe to Eat

It is proven by scientific studies that GMO foods contain substances that may cause diseases and even death to several kinds of species in this world, including humans. For instance, mice and butterflies cannot survive with these foods.

Cross-Pollination

Cross-pollination can cover quite large distances, where new genes can be included in the offspring of organic, traditional plants or crops that are miles away. This can result in difficulty in distinguishing which crop fields are organic and which are not, posing a problem to the task of properly labeling non-GMO food products.

Gene Spilling

It is unclear what effects, if there are any, the genetic pollution resulting from inadequate sequestering of genetically modified crop populations would have on the wild varieties surrounding them. However, it is stressed that releasing pollen from genetically altered plants into the wild through the insects and the wind could have dramatic effects on the ecosystem, though there is yet long-term research to be done to gauge such impact.

Gene Transfer

Relevant to the previous disadvantage, a constant risk of genetically modified foods is that an organism's modified genes may escape into the wild. Experts warn that genes from commercial crops that are resistant to herbicides may cross into the wild weed population, thus creating super-weeds that have become impossible to kill. For genetically

enhanced vegetation and animals, they may become super-organisms that can out-compete natural plants and animals, driving them into extinction.

Exploitation

Genetic engineering of foods as a very powerful weapon against its enemies. It is important to note that some scientists have discovered that these products can kill a lot of individuals in the world by using harmful diseases.

Widening Gap of Corporate Sizes

This disadvantage can possibly happen between food-producing giants and their smaller counterparts, causing a consolidation in the market. There would be fewer competitors, which could increase the risk of oligopolies and food price increases. Moreover, larger companies might have more political power and might be able to influence safety and health standards.

New Diseases

As previously mentioned, genetically modified foods can create new diseases. Considering that they are modified using viruses and bacteria, there is a fear that this will certainly happen. This threat to human health is a worrisome aspect that has received a great deal of debate.

Food Supply at Risk

GMO seeds are patented products and, in order to purchase them, customers have to sign certain agreements for use with the supplier or creator. As the reliance on these seeds expands around the world, concerns about food supply and safety also continue to arise. Furthermore, these seeds are structurally identical, and if a problem affects one of them, a major crop failure can occur.

When talking about sustainable living and urbanization, urban farming takes an important role. Farming that evolves to the next level in urban environments, and the lack of space for agriculture in urban areas, is an issue that needs attention and solutions.

Urban Vertical Farming

UPAG Innovative vertical indoor farming technologies and microgreen growing systems, using LED lights will grow vitamin-rich green vegetables up to three times faster than outdoor farms; with impressive efficiency, temperature control, humidity and irrigation; significantly cutting down on water usage compared to outdoor levels. They can be installed literally anywhere, and used as home growing stations or as a city farm.

Urban agriculture can play an important role in supporting local food systems. The potential benefits agriculture offers in urban areas have gained the interest of many residents and policy makers, who are implementing policies, developing infrastructure, and creating markets to support the growing number of urban farms. Urban farmers are faced with a unique set of challenges, including the high cost of land, access to capital resources, and limited availability of technical assistance.

Vertical farming is the next generation of profitable, predictable, consistent farm productions. These are words that are not usually associated with growing. Vertical farming eliminates the common farming risks by controlling the inputs to standardize the outputs. This means more predictable steady income without a seasonal component. More consistency in color, size and taste of your produce. Higher nutrition content and a long shelf life for your greens. Greater customer satisfaction and more repeat orders. Vertical farms create the optimal growing environment.

Vertical farmers can grow lettuce and leafy greens, herbs and microgreens, reaping harvests of thousands of plants and thousands of pounds per month.

Vertical farming address food safety, security, and traceability; less miles to market; environmental concerns; uses up to 90% less water; and there are no adverse weather and growing conditions that will damage or destroy crops. Vertical farming means fresh, locally-grown (anywhere), and year-round crops at commercial-scale production levels where scalability can meet demands. Through remote monitoring and management, expertise of world-class farming experts makes for seamless commercial scale installations.

Becoming a UPAG urban farmer using our vertical farming systems means that you can:

- ✔ Produce commercial quantities of lettuce and greens profitably to supply your city, province, region, state, or country;
- ✔ Create a reliable and consistent local supply of vegetables, lettuce, herbs, and microgreens for retail stores, restaurants, institutions and markets and directly to local consumers.
- ✔ Gives you exclusivity in your chosen region;
- ✔ Gives you access to our team of experts;
- ✔ Gives you access to our comprehensive support subscription service; an industry advantage dedicated to your success.

Become a part of our UPAG family of growers and enjoy the benefits of a profitable, scalable, year-round urban agriculture farm, making a difference in the food security system for generations to come.

Our Mission: To localize food systems in high-density urban communities by providing turnkey farming solutions to local communities in any climate. Our digital community

supported agriculture platform enables consumers to have a deeper connection with their food supply, their health and their local farmers.

Microgreens Health Benefits at a Glance

Microgreens have up to 40X more vitamins and nutrients than their mature counterparts. According to the United States Department of Agriculture; "**Specialty Greens Pack a Nutritional Punch.**"¹² Microgreens are potent in their ability to give us a higher concentration of vitamins and minerals than we can ingest by eating mature vegetables.

Several studies have demonstrated the high level of phytonutrients, antioxidants, vitamins, and minerals that microgreens contain. Microgreens are also rich in enzymes, which enable them to be more easily digested.

Due to their high antioxidant content, microgreens are considered a functional food, a food that promotes health or prevents disease. Most people do not get the recommended amount of vegetables and fruits per day for many reasons including access, cost, convenience, and taste preference.

Microgreens Packed Full of Nutrients

Consuming plant-based foods of all kinds has been linked to a reduced risk of many health conditions, such as obesity, diabetes, heart disease and high blood pressure. Plant-based foods also support a healthy complexion, increased energy, lower weight, and longer life expectancy.

¹² <https://agresearchmag.ars.usda.gov/2014/jan/greens>



Sunflower Microgreens

Flavor – Mild, crunchy and tastes like sunflower seeds.

Health Benefits - Fights depression, smooths hormonal fluctuations, weight loss, regulation of blood pressure and blood sugar, healthy bones, heart health, circulation, insomnia, hypertension, clears lungs, decongestant, improves skin, anti-cancer, anti-oxidant.

Kids love this one, great for pregnant women and moms who are breastfeeding.

These microgreens have 8 essential amino acids. They also have high quantities of Vitamin A, Vitamin B1, Vitamin B2, Vitamin B3, Vitamin B5, Vitamin B6, Vitamin B12, Vitamin B15, Vitamin C, Vitamin D, Vitamin E, Vitamin F, Vitamin H, Vitamin K, Choline, Folic Acid, Inositol, PABA, Calcium, Cobalt, Copper, Fluorine, Iodine, Iron, Magnesium, Manganese, Phosphorous, Potassium, Selenium, Silicon, Sodium, Sulphur and Zinc. In general, this combination of vitamins and minerals are shown to:

- ✔ Reduces risk for heart disease
- ✔ Reduces risk of cancer

- † Antioxidant
- † Helps depression
- † Supports thyroid function
- † Helps combat osteoporosis, bone loss, and muscle cramps
- † Helps balance blood sugar levels (wards off diabetes)
- † Improves skin health
- † Boosts fertility
- † Very good for pregnant women (high in Folic acid)
- † Breaks down fatty acid
- † Helps circulation
- † Clears lungs and helps prevent respiratory infections



Pea Shoot Microgreens

Flavor - Chewy stems, light in flavor, tastes like pea pods.

Health Benefits - gives energy, anti-anxiety, anti-aging, builds immune system, helps allergies, weight loss, regulation of blood sugar, healthy bones, heart health, circulation, cholesterol, decongestant, smooths hormonal fluctuations, increases libido and male potency, migraines, slows down or prevents Alzheimer's, anti-cancer, anti-oxidant.

These microgreens are very high in Vitamin C and Folic acid. Vitamin C helps boost your immune system, and Folic Acid helps your body produce and maintain new cells, and also helps prevent changes to DNA that may lead to cancer.

Pea shoot Microgreens also are high in vitamin K, vitamin B1, vitamin B6, vitamin B2, Copper, Phosphorus, Folate Niacin, Molybdenum, Manganese, Zinc, Protein, Magnesium, Iron, Potassium and Choline. In general, this combination of vitamins and minerals are shown to:

- ✔ Helps prevent and treat cancer
- ✔ Helps with weight management
- ✔ Helps anti-aging
- ✔ Helps blood sugar regulation
- ✔ Provides heart disease prevention
- ✔ Helps with healthy bones- preventing osteoporosis
- ✔ Reduces bad cholesterol
- ✔ Helps build immune system
- ✔ Gives energy
- ✔ Helps prevent wrinkles
- ✔ Helps prevent Alzheimer's



Broccoli Microgreens

Flavor - Mild, light flavor, very delicate stems.

Health Benefits - Anti-inflammatory, all types of arthritis, asthma, aches and pains, aids digestion, improves brain performance, anti-aging, regulation of blood pressure, healthy bones, removes body toxins, heart health, circulation, decongestant, healthy skin, kidney function, anti-cancer, anti-oxidant.

These microgreens are a cruciferous, sulfur-containing powerhouse. Sulfur makes up vital amino acids used to create protein for cells and tissues and for hormones, enzymes, and antibodies. Broccoli Microgreens are also high in vitamin K, Vitamin C, Vitamin B6, Vitamin B9, Vitamin B2, Vitamin E, Potassium, Manganese and Iron. In general, this combination of vitamins and minerals are shown to:

- ↑ Improves brain performance
- ↑ Helps arthritis
- ↑ Anti-cancer
- ↑ Anti-inflammatory
- ↑ Antioxidant

- † Helps with detoxification
- † Helps regulate blood pressure
- † Help with kidney health
- † Anti-aging
- † Promotes heart health, especially in diabetics
- † Reduces PMS symptoms
- † Aides digestion
- † Slows down & prevents osteoporosis



Radish Microgreens

Flavor - Spicy flavor, purple or white delicate stems, tastes like radish.

Health Benefits - Removes body toxins, anti-viral and bacterial, weight loss, regulation of blood pressure and blood sugar, clears lungs, decongestant, aids digestion, improves skin, smooths hormonal fluctuations, supports urinary tract, supports kidney function, anti-cancer, anti-oxidant.

Known for its high level of vitamin E. The health benefits of vitamin E come from its antioxidant properties. Antioxidants remove free radicals — the unstable compounds that

damage the cell structure. Consumption of vitamin E helps immunity levels improve, reduces cholesterol, and the risk of developing cancer. Additional benefits of vitamin E are protection against toxins such as air pollution, premenstrual syndrome, eye disorders such as cataracts, neurological diseases such as Alzheimer's disease, and diabetes. Radish Microgreens also are high in Vitamin A, Vitamin C, Vitamin E, and Vitamin B-6. They are also rich in minerals Potassium, Magnesium, Calcium and Iron. In general, this combination of vitamins and minerals are shown to:

- ✔ Helps prevent cancer
- ✔ Removes body toxins
- ✔ Regulates blood pressure
- ✔ Regulates blood sugar
- ✔ Anti-bacterial & anti-viral: good for acne & eczema
- ✔ Helps asthma conditions
- ✔ Anti-oxidant
- ✔ Aides digestion
- ✔ Aides kidney functions
- ✔ Decongestant
- ✔ Helps breakdown fats



Amaranth Microgreens

Flavor - Tastes like beets. Earthy flavor, delicate bright pink stems and leaves.

Health Benefits - Anti-inflammatory (all types of arthritis, asthma, aches and pains), aids digestion, cholesterol. Best microgreen for weight loss, and to promote healthy bones. Very high in calcium and iron.



Basil Microgreens

Flavor - Tastes like a mild full-grown basil.

Health Benefits - Anti-inflammatory all types of arthritis, asthma, aches and pains, aids digestion, improves depression, anti-viral and bacterial, anti-anxiety/stress reliever, heart health and circulation, improves skin, anti-oxidant, anti-cancer, liver protector, builds immune system.



Kale Microgreens

Flavor - Mild, but slightly peppery flavor. Delicate green stems.

Health Benefits - Anti-inflammatory, most potent vitamin K, best microgreen for nerve compression injuries, most potent vitamin B6, aids digestion, lowers bad cholesterol, anti-aging, healthy bones, protects eyes, Excellent for weight loss, anti-cancer, anti-oxidant.



Arugula Microgreens

Flavor - Distinctive peppery flavor.

Health Benefits - Healthy Heart, strong bones, clear skin, anti-cancer, anti-oxidant, depression, protects your eye's macula from both UV light and high-intensity blue light that can cause eyestrain and vision problems. Excellent blood cleanser and oxygenator, helps with weight loss and management.



Brussel Sprouts Microgreens

Flavor – Nutty, savory and crunchy.

Health Benefits - Detoxification of cancer-causing substances, anti-oxidant, anti-inflammatory, provides cardiovascular support, aids digestion. Current and potentially promising research is underway to examine the benefits of Brussels sprouts in relationship to our risk of the following inflammation-related conditions: Crohn's disease, inflammatory bowel disease, insulin resistance, irritable bowel syndrome, metabolic syndrome, obesity, rheumatoid arthritis, type 2 diabetes, and ulcerative colitis.

Anyone can grow their own food, it takes everyone to build a sustainable food security system globally. UPAG has what everyone needs to grow anything from fruits, vegetables and microgreens.

The UPAG platform virtual farmers market in testing phase will be available to the public beginning in mid-summer of 2018. UPAG is the next evolution of the local farmers market with our virtual farmers market. We give the buyer the ultimate convenience of ordering from home. Giving the consumer the ability to shop different farms and producers from home.

The virtual farmers market gives the farmers the convenience of listing their items in the virtual market, the quantity of an item on hand. The grower can then print labels to attach to the package of goods. The goods are delivered to the market at an appointed delivery time and the buyers come and pick up their items, or the farmer can deliver direct. These are just a few of the features that will be available on the virtual farmers market.

A Distributed Network of Local Farmers Around the World

There are many challenges in the current state of local urban farming. Supermarket chains in the US stock produce grown in distant corners of the world that travel thousands of miles before reaching the accessible shelves of disconnected privilege. This has

become the everyday norm in many first world countries. Consumers no longer have any idea where their food comes from, where is grown, how it is grown, how it is transported, what chemicals are being used, and what farmers grew it.

UPAG – Urban Pure Agriculture for The Highest Good.

Rejuvenating farming as a lifestyle into urban areas. UPAG focuses on promoting local food and local food sustainability, as well as to educate people regarding the origins of food and the processes in which they are produced. Bringing the ability, knowledge, education and systems to anyone, everywhere, to grow their own produce for personal consumption or to supply and sell urban grown produce locally creating a sustainable food source.

UPAG grow systems are designed to produce food that is produced on-site so it is fresh, grown without chemicals so it is pure...even more so than an organic state, and more diverse than what people find in the grocery store.

Nutritional Urban Farming Food Infrastructure

People producing their own high quality and diverse food is a path to increasing health, biodiversity, and individual and global food security. We also see this as a solution to world hunger.

Highest Nutritional Urban Farming Food should be maximally nutritious, maximally bio-diverse, fresh, duplicable, space and resource efficient, ecologically and individually healthy food that is far superior to anything found in a typical grocery store.

The food and related infrastructure components we are developing are purposed to positively and permanently transfer the world because they meet the needs of individuals while also benefiting all of humanity, the planet and all life on it. This is done through:

- ↑ Educating people

- 🌱 Saving people money
- 🌱 Conscious stewardship
- 🌱 Improving people's health
- 🌱 Improving global biodiversity
- 🌱 Providing a better eating experience
- 🌱 Providing economic opportunity through sharing new foods
- 🌱 Providing more free time when maintained collaboratively
- 🌱 Eliminating the need for pesticides, fungicides, and herbicides
- 🌱 Increasing global food security and address global hunger

Chemical Effects on Our Bodies

Within the last 20 years there has been an alarming increase in serious illnesses in the US, along with a marked decrease in life expectancy. During this same time period, there has been an exponential increase in the amount of glyphosate applied to food crops and in the percentage of GM food crops planted. Over 80% of GM crops grown worldwide are engineered to tolerate being sprayed with glyphosate herbicides. GM glyphosate-tolerant crops have led to a 239 million kilogram (527 million pound) increase in herbicide use in the US between 1996 and 2011, compared with the amount that would have been used if the same acres had been planted to non-GM crops. People and animals that eat GM glyphosate-tolerant crops are eating potentially high levels of Roundup residues.¹³

Industry and lobbyists claim that GE crops reduce the amount of pesticides used on crops, resulting in a more sustainable agriculture. This has proved not to be the case. Since the introduction of GE seeds in 1996, the amount of glyphosate used on crops in the US has increased from 27 million pounds in 1996 to 250 million pounds in 2009 (US Geological Survey pesticide use maps, 2013). Charles Benbrook (2012) showed that there was a 527 million pound (239 million kilogram) increase in herbicide use in the United States

¹³ <https://detoxproject.org/glyphosate/whats-the-connection-between-glyphosate-and-genetically-modified-crops/>

between 1996 and 2011. Furthermore, Benbrook states that the spread of glyphosate-resistant weeds has brought about substantial increases in the number and volume of herbicides applied. This has led to genetically engineered forms of corn and soybeans tolerant of 2,4-D, which he predicts will drive herbicide usage up by approximately 50% more.

In the US, glyphosate residues allowed in food are some of the highest in the world. In July of 2013, the Environmental Protection Agency (EPA, 2013) raised the maximum allowable residues of glyphosate. An abbreviated list is provided in Table 1 and Table 2.

Table 1. Glyphosate residues allowed in food from crops (EPA, 2013).

Crop	Max residue allowance glyphosate ppm
Beet, Sugar, dried pulp	25
Beet, sugar, roots	10
Beet, sugar, tops	10
Canola, seed	20
Corn, sweet, kernel plus cob	3.5
Grain, cereal, group 15	30
Oilseeds, except canola	40
Pea, dry	8
Peppermint, tops	200
Quinoa, grain	5
Shellfish	3
Soybean, seed	20
Spice subgroup 19B	7
Sugarcane, cane	2
Sugarcane, molasses	30
Sweet potatoes	3
Vegetable, legume, group 6 except soybean and dry pea	5

Table 2. Glyphosate residues allowed in livestock feed (EPA, 2013).¹⁴

Animal Feeds	Max residue allowance for glyphosate (ppm)
Grass, forage, fodder and hay, group 17	300
Grain, cereal, forage, fodder and straw	100
Soybean, forage	100
Soybean, hay	200
Soybean, hulls	120
Cattle, meat byproducts	5

Glyphosate the Active Ingredient in Roundup linked to Disease

Glyphosate, the active ingredient in Monsanto's Roundup herbicide, is easily the most heavily used agricultural chemical in the U.S. The connection between glyphosate and chronic disease disrupts the metabolic process by interfering with the Cytochrome P450 (CYP) pathways. The CYP is known as a super-family of enzymes that are present in most tissues of the body. They are responsible for around 75% of the reactions involved in drug metabolism and the oxidation of organic molecules. Negative impact on the body is insidious and manifests slowly over time as inflammation damages cellular systems throughout the body and interferes with CYP enzymes, which act synergistically with disruption of the biosynthesis of aromatic amino acids by gut bacteria, as well as impairment in serum sulfate transport. The unfortunate consequences are that most of chronic illness, diseases, and conditions are associated with the Western diet; a diet that is loaded with chemicals, pesticides, herbicides, and fertilizers killing people by the 100's

¹⁴ http://www.organic-systems.org/journal/92/JOS_Volume-9_Number-2_Nov_2014-Swanson-et-al.pdf

of thousands a year who suffered from chronic illness and diseases which include gastrointestinal disorders, obesity, diabetes, heart disease, depression, autism, infertility, cancer and Alzheimer's disease. Other illnesses include ADHD, Lymphoma, and Brain Disorders. The documented effects of glyphosate and its ability to induce disease, is the 'textbook example' of exogenous semiotic entropy: the disruption of homeostasis by environmental toxins."

E-commerce Eco-System

Specializing in smart-tech vertical farming systems for commercial and/or personal growing of the purest and nutritious foods that people or animals eat or drink, or that plants absorb in order to re-establish health and maintain life and growth. Education on the dangerous food products that are currently on our supermarket shelves with government approval and no government regulation requirements to the safety or labeling of these food products.

UPAG Seller's Market is the first platform of its kind, where the UPAG token is the form of currency used to sell your farms goods, and to buy the wholesome pure foods, CSA shares, and value-added products online. Our free shopping cart gives you the ability to receive orders through your own website, track orders, and run fulfillment reports.

Sell on the go with our integrated free mobile point of sale using your phone or tablet, accepting the UPAG token anywhere you are, be it at the farmers market, country store, road side stand or your kitchen table.

Sign up CSA customers, sell and track your value-added items. Capture email addresses for future marketing and track orders for future planning. UPAG gives your one tool to sell through your website, Facebook page, mobile point of sale and our UPAG seller's market website.

UPAG offers the convenience of managing your urban farming business from your smart phone or tablet. Post new products, change wholesale and retail prices and manage orders from your mobile device.

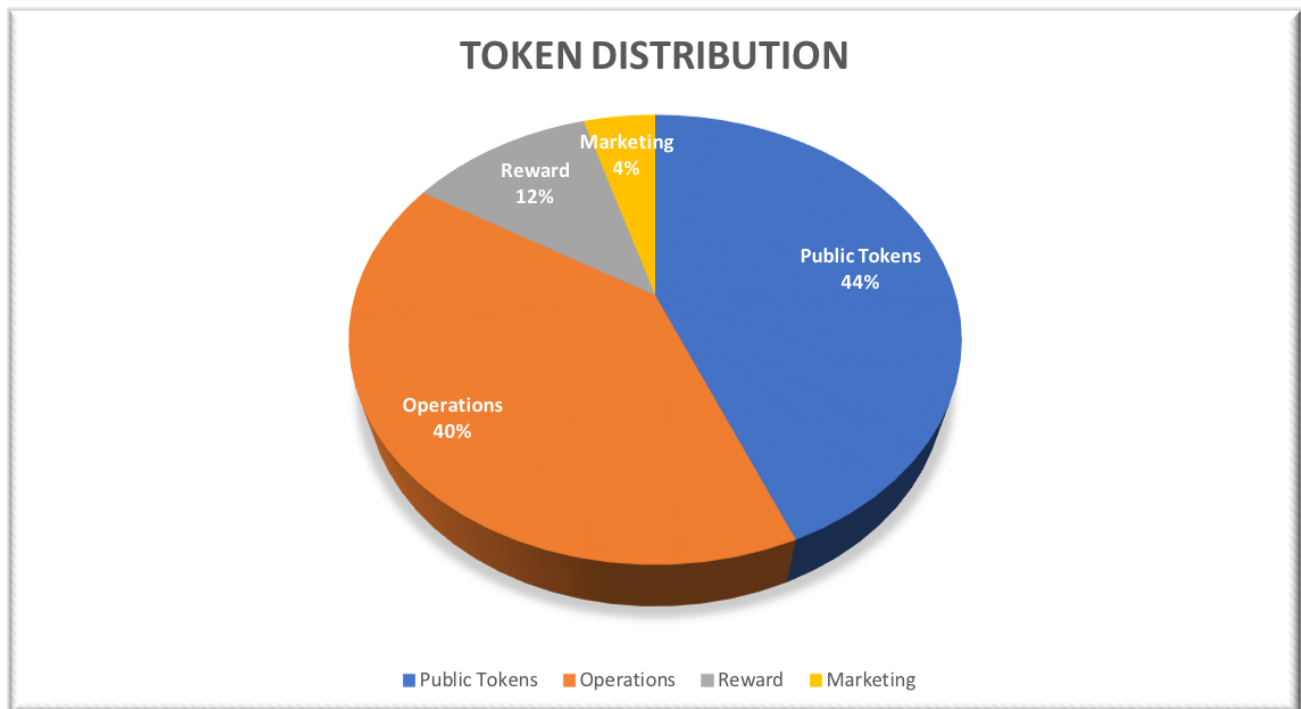
Experience higher margins giving you direct selling control over your wholesale and retail prices by cutting out the middle people.

Orders paid with the UPAG token are funds available immediately to the sellers with NO risk of chargebacks ever.

Problem with Our Food System

Because each and every one of us eats, we each hold a stake in the debates that surround food and nutrition, which are both personal and political. Soda taxes, health reform, labeling of GM foods all revolve around the foods we eat. If you have ever given any thought to a do-it-yourself health-care reform plan, meaning changing your diet and eating healthier food, now is the time to do it.

The UPAG Token



The UPAG Token is not to be considered an investment. It is a token that is exchangeable for goods and services, and there is no repurchase agreement or requirement. There is no requirement or agreement to locate a buyer for the UPAG token. The UPAG is an open blockchain token which is a digital unit that has been created with a limited supply. The UPAG token is recorded in a digital ledger which is chronological, consensus-based, decentralized, and mathematically verified in nature, especially related to the supply of units and their distribution, and are capable of being traded or transferred between persons without an intermediary or custodian of value.

UPAG is the digital utility token that powers and incentivizes the UPAG user ecosystem and content/virtual market platform. UPAG intends to be fully transparent in all its financial conduct and transactions. The controlled release of tokens will give UPAG projects and UPAG tokens the opportunity to grow and increase in influence

based on merit and value creation. Escrowed funds and planned ecosystem industry projects will set UPAG apart from other token-generated events. 60,000,000 tokens will be issued by UPAG. There will never be additional tokens generated. The initial distribution of tokens will be through a series of offerings in different phases.

The UPAG Token is the lifeblood of the company, just like Disney Dollars once gave you access to Disney merchandise, the UPAG token gives you access to our platform, services, products, software, and mobile applications. Owners of the UPAG token do not own a part of UPAG, but instead, own a utility token that will be used in our products and services transactions.

The UPAG token, created on the Ethereum ecosystem, is compatible with the Ethereum wallet. The UPAG token is controlled by a smart contract. The smart contract tells the token how to react to certain situations. The token will be listed on exchanges so that buying the UPAG token will be available and easily purchased on the open market.

To create a reciprocal commitment between the UPAG project and the token holders, the smart contract is written to protect the interests of all involved. Unlike any technology beforehand, blockchain has an important moral dimension which lays in the way it's structured. To take part in a decentralized and self-regulated system asks for a great responsibility and full transparency. The smart contract is written to assure everyone that there will be no mismanagement of funds post-ICO. The contract is written to only allow a percentage of funds released as milestones are met, and only when the business growth is adequate to justify further expansion, meaning the growth and stability of the project work together and not against each other.

At its heart, smart contracts rely on the ITTT (if that, then this) thinking: so that when one set of conditions are fulfilled, a reaction is triggered.

A simple example is that of the vending machine (relying on the original 'token': cash!). You want a can of Coke. You put cash in the machine. The machine registers that you

have fulfilled the first part of the contract and fulfils its end by dropping your product into the tray.

Smart contracts operate in the same way. They are contracts that are based upon code that is designed to trigger responses when agreed conditions are met.

The smart contract contains the logic that defines the rules of the crowdfunding process. The smart contract collects the ether and will issue tokens at the end of the sale. Our token sale is not structured like most currently running that allow the founders, principles or advisors total control of the funds post sale. We want the UPAG project to go above its intended goals and lead our project as a precedent for others to follow that will not leave a negative perception on those involved.

The smart contract is written to eliminate any pump and dump activity that would have a detrimental impact on the future of the UPAG project. The smart contract is written to assure the token holders and protect them from any fear of fraudulent misuse of funds; and to require that milestones, business growth, and progress on the platform, products, services and applications are being developed and completed as promised in the outline of the whitepaper and the online website.

Smart Contract Details

The UPAG token is created and not mined. To assure that the open market is not saturated with a supply of tokens higher than the demand, the smart contract will release tokens held in reserve as the demand becomes greater than the supply.

This is achieved by creating a reserve token for the token holders, which is called the RUPAG. The RUPAG holds no value, and is only used as a placeholder for a token holders UPAG that is held in a cold storage vault or the controlled reserve and released as the supply and demand dictates through the smart contract.

This protects the project and the token holders from bad actors who compromise the stability of the project, platform and token with pump and dump activities and value

manipulation.

Token Distribution

Public Tokens – 26,250,000

Operations – 24,000,000

Reward & Bonus – 7,000,000

Marketing – 2,750,000

At the close of the sale, 10% of the token holders' RUPAG will be exchanged for UPAG tokens and issued to their internal wallets where they can transfer them into any ERC20 compatible wallet. We encourage our token holders to support the UPAG business model through product purchases, resulting in project growth and expansion, which will in turn, fuel the value of the UPAG token value.

When the current demand of tokens cannot be met by supply, the smart contract will automatically release tokens to meet the demand. Token holders will then automatically have a percentage of their RUPAG converted into UPAG tokens that they can use at their discretion to exchange for UPAG products, services, and for cryptocurrency exchanges.

The smart contract holds the operations funds and these funds are not released all at one time. The operations tokens are released in the same manner as the token holders are released. There must be milestones met, and the project will have to reach goals before funds can be accessed to move forward to other projects to assure proper management and spending of funds is strategically meeting its goals and demands.

Public pre-sale phase starts on May 1, 2018 at 12:00 pm PST, and runs until May 31, 2018, 11:59 pm PST. Main sale starts on June 1, 2018, 12:00 pm PST and runs until all tokens are sold or July 21, 2018, 12:00 PST. Token distribution starts 7 days after sale closes, or July 28, 2018, 12:00 pm PST. Tokens are available for purchase 24/7. Major cryptocurrencies will be accepted. During the main token round, funds will be placed in an offline repository for proceeds in cryptocurrency.

Compliance

All participants of the token sale must identify themselves to meet minimum Anti-Money Laundering (AML), Counter Terrorism Financing (CTF) and Know Your Customer (KYC) requirements.

Token Features and Capabilities

NAME: UPAG Token

Based on Ethereum

- ✔ Safe transactions
- ✔ Utility token
- ✔ Desktop wallets for MAC OS, Windows, and Linux keep tokens safe while allowing for easy transfers, balance viewing and simple use.
- ✔ Tokens are created with an ERC20 token smart contract
- ✔ Multi-signature accounts implemented in two clicks

UPAG token is a digital asset and a means of providing some transactional value inside the system, platform, protocol, etc. UPAG token, in its essence, provides its users with access to our system, and its features and services; as well as empowers user interaction, distribution of rewards, and benefits to the token holders. In this way, the UPAG token helps create a transactional economy between user groups inside the system -becoming a payment method directly attached to the system infrastructure and its core capabilities. The UPAG token helps UPAG avoid expenses on integration with third-party payment platforms. The UPAG token offers additional functionality, such as the ability to run smart contracts, the ability to vote and to choose the project development vector.

The UPAG token is built on the Ethereum ERC20 technology; it's transferable; will be traded on the crypto-currency exchanges in the future (the list will be announced later); and is developed to be used as a unit of interaction between the platform, producers, consumers and SME (small and medium-sized enterprises).

Buying the UPAG token during the token sale gives a user the ability to gain access to the system services, platform infrastructure, and its main functions.

The UPAG token value does not derive from any corporate entity, but is completely dependent on the user activity inside the platform. The UPAG token core capabilities represents a list of functions available for the use of the token holders.

The UPAG blockchain token inspire users to consolidate activities and comprehensively use the whole range of the UPAG's products, services and offerings within the Urban and rural farming ecosystem, offering convenience and ease of use globally (and especially for smaller growers or challenged growers where transacting using current fiat and banking systems are not readily available or easily attainable.)

The UPAG token is a mechanism that allows parties such as consumers, producers and suppliers to effectively transact with each other without the complicated differences in currencies and payment methods within a global market.

The UPAG token is the primary means of exchange within our ecosystem and this eliminates the hassle and inconvenience of supporting other varieties of payment methods and currencies.

By using the blockchain and tokens, transactions can be securely recorded and users can be confident that transactions are transparent. Token usage among users is faster when compared to conventional payment processing and fund transfers which usually require batch processing and clearing from banks before merchants can enjoy the proceeds from their sales.

The UPAG token serves as a barometer to increase and gain the public's interest in our products, services, hardware and software.

How to Buy UPAG Tokens

Tokens may be purchased on our website. Simply register at www.urbanpureag.com and make your purchase using one of the major cryptocurrencies.

All transactions are secured with state-of-the art cryptography, and the blockchain integrity will be protected by CPU-efficient, ASIC-resistant proof of stake, satisfying banking needs for urban agriculture businesses.

UPAG uses peer-to-peer technology to operate with no central authority. It is truly decentralized and easily facilitates transactions. The network collectively carries out the issuing of UPAG tokens. It works everywhere, anytime, so business can be transacted 24/7 globally anywhere in the world. Transfers can be made from any major cryptocurrency wallet.

How to Use a Fiat Currency

If you would like to use a fiat currency, you may purchase one of our qualifying products that include a specified number of reward tokens.

In the accounts, users can choose the desired number of UPAG tokens and transfer the required payment in any of the accepted cryptocurrencies. Once the payment is received, funds will appear in the corresponding wallet in the user's account and may be used for purchasing tokens. Until the token purchase is made, the funds may be withdrawn from the account at any moment by sending a request to support@Urbanpureag.com.

To take part in the public presale, a buyer will need to purchase at least the specified minimum number of UPAG tokens (\$100 worth of tokens). The general token sale has no minimum entrance threshold, except for the minimum transfer amount specified by the relevant blockchain or bank used by the buyer.

Once the UPAG token sale ends, no further deposits to accounts at urbanpureag.com will be permitted. Decisions on how to handle funds received after the end of the UPAG token sale will be announced based on the transfer date and time. Only transfers sent out before the end of the UPAG token sale will be accepted; the rest will be returned to sender in the original form of payment minus transfer fees and bank charges. Accepted funds and all other funds remaining in users' personal accounts at urbanpureag.com will be converted to UPAG tokens automatically at the purchase price in effect at the end of the

UPAG token sale. For funds in currencies other than USD, the exchange rate will be fixed at the time of conversion. Users who wish to withdraw their funds from their accounts must contact the support team at support@urbanpureag.com no later than 12:00 PM PDT on July 21, 2018 to avoid automatic conversion. By July 28, 2018, UPAG tokens will be issued to participants and deposited in their accounts on urbanpureag.com. If a payment is received after 12:00 pm PDT on July 21, 2018, the payment will be returned to sender minus transfer fees and bank charges even if it was sent before the end of UPAG token sale.

In the event that the token sale ends due to tokens sold out prior to the dates listed above, there will be a 7-day audit period before tokens will be distributed. This will take place immediately upon the final token available is sold.

UPAG does not charge any processing fees. Processing time and fees are determined by the payment processor. Token holders are responsible for paying all processing fees and financial charges imposed by the payment processor in connection with the payment, including withdrawals from the account at urbanpureag.com.

Tokens are purchased at the price in effect at the time of purchasing, not at the price in effect at the time when funds are sent or received by the platform.

With the exception of the tokens frozen according to the terms of acquiring (team tokens and others). Unless the hard cap is reached. In this case funds remaining in users' personal accounts at urbanpureag.com will be returned to sender in the original form of payment minus transfer fees and bank charges.

Use of Funds

UPAG is committed to the cryptocurrency community. We also do not want our token generation event sale to affect the Bitcoin price. To avoid this, we plan to exercise caution as we convert the token generation event proceeds to fiat currency to pay for expenses.

The conversion of the token generation event proceeds will be staged and distributed over time and through multiple cryptocurrencies and exchanges. This may dilute any impact that volume transactions might make on either UPAG or other cryptocurrencies.

3RD QUARTER 2017 Development of UPAG Infrastructure	DEVELOPMENT OF UPAG INFRASTRUCTURE
4TH QUARTER 2017 Development of Microgreen growing rack systems	Development of Microgreen growing rack systems for effective crop yield and least amount of space necessary for in home growing of a variety of microgreens. TEST PHASE OF MICROGREEN GROW SYSTEMS
1ST QUARTER 2018 Development of vertical farming systems	Development of vertical farming systems for effective crop yield and least amount of space necessary for in home growing of a variety of fruits and vegetables along with the commercial vertical systems for the large urban farmer business. TEST PHASE OF MICROGREEN GROW SYSTEMS and VERTICAL FARMING SYSTEMS
2ND QUARTER 2018 Distributor kit Distribution	Distributor kit distribution to approved distributors of microgreen growing rack systems and vertical farming systems. The building out of the first of many UPAG commercial vertical urban farms coming to a city near you.

3RD QUARTER 2018 Urban sensor Hardware development	Prototype & Production V1 Hardware Development of Wireless Sensor giving Urban Farmers a proper sensor control system that address the problems of proper environment control using a wireless water nod,
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	<p>dissolved oxygen probe, pH probe, electrical conductivity probe, as well as ammonia, nitrate and temp probes. This will allow urban farmers to optimize methods giving urban farmers informative hands-off approach of operations with zero guessing, enabling scalability with predictive optimal input to achieve maximum yield. Urban sensor hardware will have scalability for future development with mass production capability. UPAG will always use a consistent platform, infrastructure, firmware and development tools. We examine accessibility, affordability, integrations and manufacturing features that is deployed with ease and is affordable when introduced to the public. Urban sensor IOT base station with big data cloud platform, digital model, with intelligent control software for electromagnetic valve and other agricultural facilities with wireless control node, multi sensor access technology for environmental information data collection, precision wireless control technology for water and nutrition integration with environment prediction application with network pre-alerting with low power consumption technology of wireless node and base station.</p>
<p>4TH QUARTER 2018 Urban hardware sensor development and testing</p>	<p>Energy-Efficient Wireless Sensor Networks for Precision Urban Agriculture: Wireless Air Node Development - 3G/WIFI Gateway with cloud dashboard and analytics. This providing a rechargeable wireless component with tem & humidity sensors, light sensors, with a cloud dashboard & analytics mobile</p>

	<p>monitory control and data repository with a sensor mobile app pairing and an app alert system which will allow the urban farmer to monitor & manage their crops environment on and off site. To be tested and released with the final hardware in 2nd quarter of 2019 or sooner. Deployment of the virtual farmers market for online produce sales of microgreen and produce urban farmers.</p>
<p>1ST QUARTER 2019 Urban sensor development, testing and deployment</p>	<p>Prototype V2 Hardware Development. Wireless Sensor Development giving Urban Farmers a proper sensor control system that address the problems of proper environment control using a wireless water nod, dissolved oxygen probe, pH probe, electrical conductivity probe, as well as ammonia, nitrate and temp probes. This will allow urban farmers to optimize methods giving urban farmers informative hands-off approach of operations with zero guessing, enabling scalability with predictive optimal input to achieve maximum yield.</p>
<p>2ND QUARTER 2019 Urban sensor hardware mass production and public introduction</p>	<p>Final Prototype Hardware Testing. Wireless Sensor Development giving Urban Farmers a proper sensor control system that address the problems of proper environment control using a wireless water nod, dissolved oxygen probe, pH probe, electrical conductivity probe, as well as ammonia, nitrate and temp probes. This will allow urban farmers to optimize methods giving urban farmers informative hands-off approach of operations with zero guessing, enabling scalability with predictive optimal input to achieve maximum yield.</p>
<p>3RD QUARTER 2019</p>	<p>Announced in 3rd Quarter 2018</p>

UPAG Framework

UPAG will work and partner with urban and rural farmers and other vendors and organizations in the industry to help unite people around the world who are committed to a sustainable food system and eating healthy, while leaving a lighter ecological footprint.

We will play a vital role in the community to strengthen and positively influence the demand for, and value of, the UPAG token.

We will actively support and fund blockchain innovation in the agriculture field to increase the use and importance of UPAG.

UPAG's operation model is focused on providing the capabilities for growers to optimize efficiency, deliver high-quality products, and establish strong consumer brands.

UPAG Team

The UPAG team is comprised of experienced entrepreneurs who bring in-depth know-how across the dimensions of business, IoT technology, software, blockchain, and the agriculture industry (including urban farming particularly). The UPAG network and team shares the same spirit in which cryptocurrencies and tokens were originally envisioned: transparency, fairness, accessibility, and innovation.

In launching the UPAG ecosystem, the UPAG team is pioneering unprecedented operational visibility and control via an IoT platform and an ecosystem powering a decentralized economy. The Ag-Tech industry (and above all, the urban farming ecosystem) will benefit from UPAG's IoT platform, helping transform the practices of thousands of creative growers who produce higher-quality products, with greater yield throughout the industry.

By adopting the UPAG platform, all network participants – consumers, growers, innovators, producers, suppliers, and others – will be aligned on the long-term growth of the network. The combination of a community of users actively engaged in earning and spending the UPAG token, and a large reward pool for third-party participants who enhance it with new use cases, provides a strong foundation for the future development of UPAG.

The UPAG token is being developed by UPAG INOCHI CONCEPTS, based in Tunisia, N, Africa. The UPAG team consists of members who have successfully collaborated with one or more team members on previously successful business endeavors.

The UPAG team is comprised of a combination of 5th generation farmers who successfully operate and farm over 2000 acres of farm land, Medicinal Cannabis hydroponic farmers who specialize in the indoor operations of farming, experienced microgreen urban farmers who grow a high yield of quality nutritional herbs and vegetables, and developers and designers who have a passion to help urban farmers be successful in agricultural ventures.

The UPAG team will continue to grow as the business growth warrants the addition of new members. We believe in growing with the business for the most responsible and efficient use of funds.

UPAG Governance

The founders and the Board of Directors of UPAG will be responsible for the efficient use of funds resulting from any sale of tokens from the UPAG reserve. Some elements of the platform will remain centralized until decentralized options become feasible or desirable.

UPAG Directors will be responsible for allocating Partner Rewards to platforms or apps in the ecosystem, creating developer extensions that provide visibility to the use of apps within the ecosystem (such as reporting on and visualization of activity), Proselytize the

UPAG ecosystem to innovators, cultivators and app developers and content partners, bringing promising and diverse platforms and apps into the ecosystem.

Summary and Outlook

Blockchain-enabled applications are increasingly playing an important role in solving many agriculture-related problems. One way to think of blockchain is as a technology that allows users to transfer value, or assets, between each other without the need for a trusted intermediary. The exchange is recorded in a ledger that is shared by all users of that blockchain. Users rely on this shared, or “distributed,” ledger to provide a transparent view into the details of the assets, including who owns the asset, as well as descriptive information such as quality or location. The running history of the transaction is called the blockchain, and each transaction is called a block.

The United Nations predicts that by 2050 the world’s population will increase by 20% and will reach 9.1 billion. Most of this population increase will occur in developing countries. 70% of the world’s population will live in urban cities. Although we do not totally think that there is or will be a food shortage, but more so, we do know that there is a massive food waste. Whether there is a food shortage or not, it is apparent that to feed this larger, more urban population, food production must increase and be grown locally by 70 percent.

Furthermore, the pervasive inefficiency of food supply chains in developing nations is largely due to information asymmetry and power imbalances. Farmers often wait weeks or months for payment after delivery, forcing them to deal with large incumbents, who have market power, and the ability to drive down prices. This directly affects a farmer’s income and lowers it drastically because they do not receive their fair share, despite being the food producers...the most important part of the chain.

Indoor Farming

Urban vertical Indoor farming, globally, will help increase the amount of locally grown produce that is available within communities, and will provide more nutritious and healthy food within the communities in which it is grown. UPAG will impress upon people to take an interest in, and become involved in, urban farming, as well as to create a public awareness about the limited access and disadvantage that low-income individuals face when trying to obtain fresh fruits and vegetables.

Urban agriculture will be instrumental in achieving a sustainable food system, and it is something that anyone can do. But it takes everyone doing it together to achieve the much-needed change towards a sustainable food system that insures a sustainable food security for the future. It is our goal through our technology platform to educate and inform consumers about the effects of the food we are eating is having on our bodies; how the effects of the food we are eating is hurting our children and their future health; as well as inform people to foster the understanding that obesity is not about how much you eat, but instead, is about what you eat.

The prevalence of obesity in the United States began to rise sharply in the 1990's and remains one of America's most pervasive, expensive and deadly health problems. Obesity increases the risk of developing high blood pressure, heart disease, type 2 diabetes, stroke, arthritis, liver disease, kidney disease, Alzheimer's disease, gallbladder disease, mental health issues, as well as many types of cancer. Each year obesity is associated with more than 100,000 premature deaths.

Obesity during pregnancy increases the chances of complications, including gestational diabetes, preeclampsia, cesarean delivery and stillbirth.

[Obesity in 1990 before GMO's were introduced into our food.](#)

[Obesity in 1995 1 year after GMO's were introduced into our food.](#)

[Obesity in 2016, 22 years after GMO's were introduced into our food.](#)

UPAG Smart Sensor Technology

UPAG smart sensor technology will enable better management of water and energy within the urban farming industry alleviating waste of resources that are already scarce.

UPAG's solution is transformative technology with the potential for dramatically changing the agricultural economy. It is directly applicable to any indoor crop, from cannabis to squash, from strawberries to asparagus.

Automated sensor data collection and analysis fuels the ability to better manage crop inputs, like water and energy, and corresponding automation of indoor farming operations.

IoT-blockchain solutions will save time and money for farmers, increase crop yields, and promote strong growth opportunities with the agribusiness industry. UPAG puts agriculture and agribusiness at the top of our development and business agenda with a strong leadership and commitment for both public and private sectors. It is our goal to create a new agricultural model that that delivers genuine value, and that paves the way for the next digital generation of indoor urban agriculture. The Result: a transformation of the urban and rural agricultural industry towards a positive economic, social, and environmental outcome.

Data democratization of the food chain will increase efficiencies, reduce waste, and increasingly transfer remuneration to the stakeholders delivering the greatest value. UPAG will transform farming, and farmers, by integrating, firstly, indoor urban farms via the Internet of Things and blockchain technology, creating a model for highly efficient, democratized, agricultural economies around the world.

From Information Technology to Internet of Things + Blockchain

UPAG's IoT-blockchain solution unifies the centralizing force of communications technology with the decentralizing force of information technology. A single solution collects data from the growing medium and air where the crop is grown; secures it with immutable blockchain technology, which securely transports it across communications channels; safely stores it; and provides robust analysis and presentation for the farmer to take profitable action.

Blockchain Ensures Agricultural Trust

An inherent feature of blockchain technology is its redefinition of "trust." Under an Information Technology paradigm, agricultural environmental, regulatory and crop data is stored on centralized computer servers; and it's managed by administrators trusted and obligated to maintain data integrity, security, and access authorization. Centralized data administration is a source of risk – crop safety and quality data can more easily be corrupted. Data is more easily lost due to failed or absent backups. Centralized administrators may act on their own agendas, with their own interests in mind, impacting decisions related to data access and security.

Applying blockchain technology to crop data ensures that information about our food, and its sources, is incorruptible. Blockchain and IoT technology simplifies data management throughout the complex system of farmers, brokers, distributors, processors, retailers, regulators, and consumers; information on the food we eat becomes simplified and transparent. Consumers can enjoy greater trust in the food they put on their table and consume, and regulatory agencies have greater confidence in the data reported to them.

Blockchain redefines trust across the agriculture spectrum with arm's length; it's cryptographic and secure, eliminating notions of self-interest on the part of data administrators and other potentially corrupt actors.

UPAG's IoT-blockchain solution provides a framework for institutions across the globe to redefine the relationship between government, corporations, enterprises, farmers and consumers in terms of data sharing, transparency and trust.

Precise Farming with Data Integrity

If hacked, today's centralized field management platforms are vulnerable as a single point of failure. UPAG's solution, with its crypto-economic security features, works to ensure that data and technological infrastructure, such as a national level distributed database conforming to international agricultural standards and naming conventions remain impenetrable to attackers. Data remains unsecured with classic platforms, even as they attempt to improve traceability and validate compliance with international standards. Integrating this legacy technology, UPAG's IoT-blockchain infrastructure can ensure immutability of this unsecured data. UPAG's platform will help create productive, less resource-dependent, indoor grow operations. and can provide critical analytical insights into the grow-cycles of plants. This is precision farming at a new level. For example, a farmer using indoor hydroponics and a closed loop system, with UPAG, may be able to reduce water usage by up to 90 percent. Increasingly, global food demands will be met by crops grown indoors, in environments more efficient and more controlled than the outdoors. By moving plants indoors, traditional dependence on the weather can be eliminated. UPAG will enable climate control within the container – be it a greenhouse or growhouse – creating ideal artificial growing environments, as well as nurturing the wellbeing of the plants. With sensor arrays, the plants can “communicate” precisely what they need, 24 hours per day, 7 days a week, 365 days a year.

Cryptocurrency Enabling Better Transacting, Liquidity and Transparency

Agriculture is a \$5.5 trillion-dollar global business, employing over a billion people. Trillions of dollars are moving across the supply chain, but transactions are inefficient for many smallholder farmers in developing countries, and affordable access to capital

remains a huge challenge. Mobile telephones have become ubiquitous, enabling micro-financing opportunities for small farmers. However, low transparency, which translates to higher risk, results in high transactions fees. UPAG's platform and cryptocurrency addresses this problem for financiers and farmers alike. The borderless nature of blockchain-built currencies can improve the settlement process for everyone in the global, trans-national, supply chain, including farmers, buyers and banks. The low cost facilitates even cost-effective transactions for the smallest farmers in developing countries. Blockchain enables real-time payments, concurrent with delivery, and better visibility to buyers, leveling the playing field for farmers. Farmers get paid sooner, and increased competition for their crops raises prices. Absent blockchain, tax and other levy collectors and research organizations have no access to data provenance information: they receive their payments but cannot connect the money to the farmer who has paid. And, financing options are both costly and limited because the industry is perceived as risky — and for good reason, as there are many insolvencies. UPAG's IoT Blockchain platform can change all of this by enabling real-time payment on delivery. Consequently, farmers get paid immediately, industry competition increases and keeps prices higher, and buyers save time and money. Finally, adding transparency, trust, and efficiency to settlements can decrease risk and open the door to new financing vehicles for farmers and banks.

Conclusion The agricultural industry is likely to see increasing global exchange through the adoption of digital products and currency., and blockchain-enabled Internet of Things solutions. This may affect everyone from rural farmers selling to consumers across the globe, to large nations tracking their aid relief. This could lead to fairer distribution of goods and currency amongst some of the poorest regions of the world, as well as increasing community-based agricultural models on a global scale. This innovative technology simplifies data management throughout the complex system of farmers, brokers, distributors, processors, retailers, regulators, and consumers; information on the food we eat becomes simplified and transparent. Improved data sharing about our food can also minimize the trillion-dollar problem of wasted food, increasing the total supply to serve a rapidly growing population. Increasingly, farmers, wholesalers, banks and consumers, will access data accumulated throughout the agriculture supply chain. UPAG

provides an IoT- blockchain solution for the agriculture ecosystem, enabling all participants to accept digital currency payments directly from their customers, suppliers and partners for their respective needs.

Legal Considerations, Risks and Disclaimers

This whitepaper is non-binding in all respects and does not create any legal obligation of any kind on any person. The final implementation of the Urban Pure Agriculture (UPAG) ecosystem is dependent upon several factors and risks outside of the control of UPAG, including regulatory risks, contributor participation, the adoption of blockchain technology, and the continued use and adoption of the Ethereum network. Nothing in this whitepaper or otherwise shall require UPAG to take any steps to develop or otherwise implement the UPAG ecosystem. UPAG reserves the right to abandon the UPAG ecosystem and/or to change the implementation of the UPAG ecosystem contemplated by this whitepaper at any time and for any reason.

Prospective users of the UPAG ecosystem and other participants in the UPAG ecosystem are advised to participate at their own risk and without reliance on any statement contained in this whitepaper. Before making use of this white paper, users should read all information available on the website(s) of UPAG (the “Company”) located at www.Urbanpureag.com (the “Website”). This “Legal Considerations, Risks and Disclaimer” section applies to this white paper and any and all information available on the Website. The contents of this “Legal Considerations, Risks and Disclaimer” section outlines the terms and conditions applicable to you in connection with your use of this white paper and of any and all information available on the Website; and/or your participation in the token sale, in each case in addition to any other terms and conditions that we may publish from time to time relating to this white paper, the website and the token sale (such terms hereinafter referred to as the “Terms”).

This “Legal Considerations, Risks and Disclaimer” section may be updated from time to time and will be published as part of the latest version of this white paper, which shall be available on the Website. You shall be obliged to check the latest available version of the

white paper prior to participating in the token sale. The information set forth in this “Legal Considerations, Risks and Disclaimer” section may not be exhaustive and does not imply any elements of a contractual relationship. While we make every reasonable effort to ensure that all information in this white paper and available on the Website is accurate and up to date, such material in no way constitutes professional advice. UPAG neither guarantees nor accepts responsibility for the accuracy, reliability, current state (as of this white paper) or completeness of the information.

The UPAG token (UPAG) IS NOT A SECURITY OF ANY KIND. NO EQUITY, INTERESTS OR DIVIDENDS WILL EVER BE DISTRIBUTED OR ASSIGNED TO UPAG token (UPAG) HOLDERS FROM THE COMPANY.

UPAG is a digital token for participation and use in the UPAG network and ecosystem and does not confer ownership of a stake in a business. The token is to be used by the participants of the ecosystem, their respective Partners, Users and consumers of the ecosystem. While the Blockchain construct may potentially be attractive to regulators due to increased transaction security and reduced risk of manipulation, this new technology gives rise to legal and regulatory challenges that regulators are grappling to understand.

The recipient of UPAG token must have sufficient knowledge and experience in business and financial matters to be able to evaluate the risks and merits of UPAG token purchases and is able to bear the risks thereof. You shall thoroughly and carefully consider and evaluate each of the risk factors and all other information contained in the Terms before deciding to participate in the UPAG Token Sale Event (the “TSE”). To the best of UPAG’s knowledge and belief, all risk factors which are material to you in making an informed judgment to participate in the TSE have been set in the Terms. If any of these considerations, uncertainties or material risks develop into actual events, the business, financial position and/or results of operations of UPAG and the maintenance and level of usage of the UPAG platform and the UPAG tokens could be materially and adversely affected. In such cases, the trading price of UPAG tokens (in the case where they are

listed on a cryptocurrency exchange) could decline due to any of these considerations, uncertainties or material risks, and you may lose all or part of the value of your UPAG token.