

URBAN AG

PRODUCTS

News on Technology for Vertical, Controlled Environment & Urban Farming
URBANAGPRODUCTS.COM

The Love of Agriculture Realized

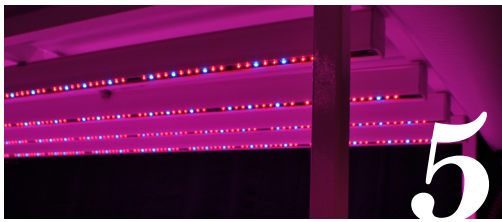
Randy Butts,
Eden Farms Inc.

GREENHOUSE LIGHTING Options

Bryan Hart
Achieving Success
in the Industry

4 VIDEOS:
Farming in the City

Table of Contents



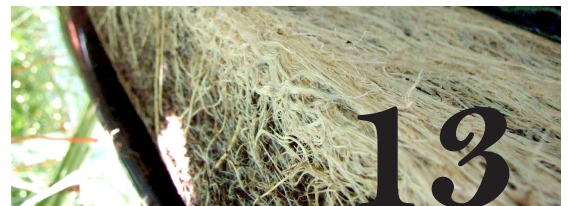
5 GREENHOUSE LIGHTING OPTIONS

VIDEO: Aquaponics **10**



VIDEO: A Guerilla Gardener in LA

Bryan Hart: Striving To Achieve Success in The Greenhouse Industry



GLOBAL RELEVANCE **17**



VIDEOS: *A 4th Grader's Short Documentary & The Grow Haus*



20

Randy Butts: **The Love of Agriculture Realized**

24 COMMUNITY GARDENS

VIDEOS: Going Green in Ohio **25**
& Ríos Libres **26**

URBAN AG Blog

The [Urban Ag Blog](#) is designed to provide regular updates highlighting happenings within different niche segments of the agriculture industry.

We will do our best to keep you informed on what is happening, BUT we need your help. Please email us with ideas, topics and/or suggestions for stories you want to read about.

Interested in being a guest blogger? We are interested in including you! Please contact us and share your thoughts and ideas.

And of course, continue to check the blog regularly as we will update it over the next three months with:

- Videos from growers focused on local markets and growing issues.
- Political topics affecting growers and farmers.
- New ideas from our sponsors and partners.

For daily updates be sure to follow us...



And if you are interested in helping us further the Urban Ag Products' cause you can donate by **purchasing an Urban Ag shirt.**

Simply click the image below for more information.



Farming in the City



Extra Minutes | City Farms

by 60 Minutes Australia

Columbia University Environmental Health Sciences Professor Dickson Despommier discusses the future of farming with 60 Minutes reporter Michael Usher.

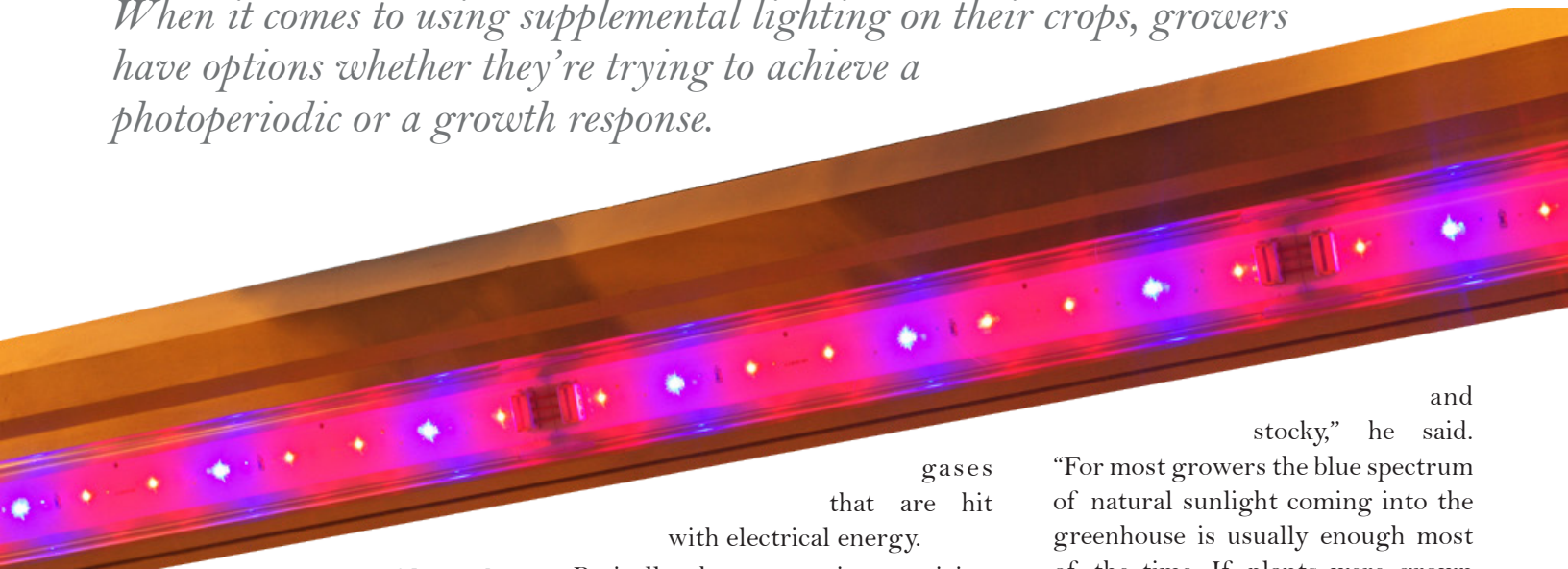


TEDxZurich - Roman Gaus - Urban Farming

Roman Gaus, founder and CEO of UrbanFarmers, explains how urban agriculture offers the solution to grow potentially enough food in a city to feed its entire population. What's more, it also creates healthier, wealthier and happier inhabitants, offering consumers fresh, quality food choices and access to a better quality of life. Web: urbanfarmers.ch -- Twitter: [@UrbanFarmersCH](https://twitter.com/UrbanFarmersCH)

GREENHOUSE Lighting OPTIONS

When it comes to using supplemental lighting on their crops, growers have options whether they're trying to achieve a photoperiodic or a growth response.



By David Kuack

An increasing number of growers are using supplemental lighting for photoperiodic control and for accelerating plant growth. Growers have a variety of options when it comes to the type of lights available and how to use them most effectively. Growers who decide to use supplemental light to accelerate crop growth should expect to have to modify production schedules and possibly change some of their cultural practices.

HIGH INTENSITY DISCHARGE LIGHTS

James Grouzos, U.S. greenhouse consultant at P.L. Light Systems, said 90 percent of the greenhouse growers in the United States and Canada who are using supplemental light to increase plant growth are operating high pressure sodium lamps. High pressure sodium and metal halide are high intensity discharge (HID) lights.

"The bulbs contain a mixture of

gases that are hit with electrical energy.

Basically the energy is vaporizing the gases," Grouzos said. "It's high intensity discharge since there is a lot of energy being produced by these gases. The mixture of gases in the bulb can be changed to create a blue spectrum or a yellow spectrum. When the electricity goes through the tubes the gases burn at a specific temperature called a Kelvin temperature. For high pressure sodium it's usually around 3,400 Kelvin and it's around 4,500 Kelvin for metal halide."

Grouzos said metal halide lamps are not used extensively in the greenhouse industry. Metal halide bulbs produce more blue light, which can be used to control vegetative growth. He said metal halide lights are used in some lettuce production facilities, primarily by growers who are producing red leaf varieties and want more blue light in order to intensify the red leaf color or to produce shorter plants.

"Some growers may want the additional blue light from metal halide lamps to keep their plants short

and stocky," he said.

"For most growers the blue spectrum of natural sunlight coming into the greenhouse is usually enough most of the time. If plants were grown inside, like in a growth chamber, where there is no exposure to outside light, they would normally be grown with metal halide lights or a mixture of metal halide and high pressure sodium."

Grouzos said high pressure sodium bulbs produce more of an orange light similar to the light given off by street lamps.

"High pressure sodium lamps put out more light per watt and they hold their light levels longer than metal halide," he said. "The high pressure sodium lamps provide more orange, yellow and red wavelengths. The reason sodium lamps are used in greenhouses is because they don't degrade as fast and they produce more light per watt of energy. Growers produce more light and get more photosynthesis with the sodium lamps."

Grouzos said metal halide bulbs have to be replaced after 8,000 hours. High pressure sodium bulbs usually have to be replaced after 10,000-12,000 hours.

LIGHT EMITTING DIODES (LEDS)

Johann Buck, technical services manager at Hort Americas LLC, said growers of both ornamental plants and vegetables are using light emitting diodes or LEDs.

“LEDs are being used for tissue culture propagation and seed germination of both ornamental and vegetable crops,” Buck said. “LEDs are also being used with ornamentals for photoperiodic lighting. Production of leafy greens and microgreens is another segment where LEDs are seeing increased use. Then there is interlighting in which LEDs are placed in the plant canopy.”

Interlighting has been used primarily with greenhouse vining crops like tomatoes and cucumbers and with fresh cut flowers including roses.

“The lights are placed down in areas of the plants where they are not receiving enough micromoles or photosynthetic active radiation (PAR),” Grouzos said. “By putting the LEDs down inside the canopy more light is being delivered to the plants.

“The interlighting is usually done with LED strips. There are LED lights on both sides of the strip so that when they are placed down inside the plant canopy there is light on both sides of the strip. Interlighting using high pressure sodium lamps can’t usually be done because of the amount of heat given off by the lamps.”

Buck said the combination of overhead high pressure sodium and interlighting LEDs may allow growers to reduce the light intensity overhead.

“This might result in less electricity used by the high pressure sodium lamps without a reduction in light levels because of the interlighting and similar crop yields,” he said. “This could also lead to a reduced heat load from the high pressure sodium lamps above the plants. Since high pressure sodium lamps produce a lot of radiant heat, this reduction might be beneficial because too much heat could impact the growing points of the plants.”

Grouzos said the heat given off by high pressure sodium lighting can help to offset heating costs during the colder months when the lights are needed the most.

Buck said with ornamental crops the biggest opportunity regarding LEDs is photoperiodic lighting.

“For photoperiodic lighting, most growers know that incandescent light bulbs are being phased out,” Buck said. “Growers understand whether or not incandescent bulbs are removed from the market that there are other sources available that can be used to grow a good crop. LEDs offer the potential to do programmable flowering. LEDs can replace incandescent and compact fluorescent bulbs. The possibility of actually programming flowering or initiating earlier flowering has been observed. Researchers at Purdue University and Michigan State University are looking at honing in on the specific wavelengths to figure out what would be a general application and even a more specific application with LED lighting.”

One area where light manufacturers are working is to develop LEDs to replace high pressure sodium and metal halide bulbs for high bay lighting.



ABOVE: High pressure sodium lamps provide more orange, yellow and red wavelengths.

Photo courtesy of Anthura

BELOW: LEDs are being used for tissue culture propagation and seed germination, photoperiodic lighting of ornamental plants and production of leafy greens and microgreens.



“The footprint for high pressure sodium lamps covers more area than current LEDs,” Buck said. “Lighting technology is changing and the potential is there for horticultural LEDs to eventually replace traditional high bay lighting.”

MULTILAYER PRODUCTION

Buck said another application for LEDs is multilayer production or vertical farming for crops including lettuce and microgreens.

“A lot of what is being done with multilayer production isn’t new,” he said. “As far as vertical farming, the Japanese have been operating plant factories for quite some time. Plant factory type production maximizes volume, which can be heads of lettuce or grams of microgreens. The technology is gaining attention in other parts of the world, including the United States. Even ornamental plug growers are starting to consider large scale multilayer production.”

Buck said LEDs lend themselves well to the production of leafy greens, herbs and microgreens. “These are relatively low growing crops which are less than a foot tall compared to high bay vine crops that are 8-12 feet tall. LED wavelength recipes have been developed to produce lettuce, herbs such as basil, and a variety of microgreens in a timely fashion. LEDs like the deep red/blue combination available in production modules are great for producing lettuces and microgreens. Some growers have used a combination of fluorescent lighting and LED production modules. Fluorescent tube lighting has been the lighting source of choice for multilayer production because it is a more compact lighting source. The fluorescent lights also don’t produce as much heat compared to high pressure sodium lamps.”

INDUCTION LIGHTING

Jonathan Frantz, who has been a research scientist at DuPont Pioneer since January 2013, previously worked nearly 10 years at USDA, Agricultural Research Service. While at USDA Frantz worked on several projects, including the grower software program [Virtual Grower](#). During his last eight years at USDA, Frantz did most of his research on plant growth lighting, including LEDs, high pressure sodium, metal halide and [induction lighting](#).

“Induction lighting technology isn’t new. It just never gained traction because of the timing of when the invention came out,” Frantz said. “Thomas Edison and Nikola Tesla developed different strategies for creating lighting. Edison invented the incandescent bulb and Tesla designed induction lighting.”

Frantz said an advantage to induction lighting is that there is no filament so there is nothing to burn and nothing to burn out.

“With incandescent lamps that fail, it’s because the filament has been heated so much that it breaks so it no longer conducts current and no longer glows. Induction lamps don’t have those filaments and so don’t have this characteristic as part of their failure. As a result, induction lamps can be very long lived compared to regular incandescent bulbs. I have not yet seen an induction lamp fail.”

Frantz said the specifications for induction lamps indicate that they are supposed to last twice as long as LEDs.

“The life expectancy for an LED is often sighted at 50,000 hours,” he said. “A spec sheet for an induction lamp says life expectancy is 100,000 hours. Even if it lasted for only half that time that would put it in the same ballpark



A combination of overhead high pressure sodium lamps and interlighting LEDs in the plant canopy may allow growers to reduce the light intensity overhead. *Photo courtesy of P.L. Light Systems*



An advantage to induction lighting is that there is no filament in the lamps so there is nothing to burn and nothing to burn out. Induction lamp spec sheets indicate their life expectancy is 100,000 hours.

Photos by Kate Jones, The Chef's Garden

as LEDs.”

Frantz said modifications can be made to induction lamps to adjust the light wavelengths, but they are not as flexible as LEDs.

“With LEDs, growers can basically pick the wavelengths they need,” he said. “Induction lamps, at least the ones that I have seen, the internal coatings or the ratios of those coatings have to be changed, which don’t have just one wavelength associated with them, but several. So that changes the peaks and valleys of several wavelengths rather than just one like with LEDs.”

Frantz said even with the long life of induction lights, the large footprint of the fixture would be a drawback to trying to use them in a greenhouse.

“The ones that I was using had about a 2-foot by 4-foot footprint of the lamp plus the reflector,” he said. “The ballast, which is located on top, was smaller than the one that would come on a comparable wattage high pressure sodium lamp. The footprint of the induction lamp is large.”

Frantz said one of the advantages of the induction lamps compared to high pressure sodium and metal halide is they give off very little heat.

“You can get very close to an induction lamp without

feeling too warm,” he said. “If you have been in a greenhouse when high pressure sodium or metal halide lights come on there is a considerable amount of heat given off. This much heat can potentially alter the leaf temperatures, which can be good or bad. That can potentially alter how much additional heat you have to put in the greenhouse if you’re using high pressure sodium, metal halide or induction lamps. Applications where there is a need for “cool” lights as in a growth cabinet or chamber where there are a lot of seedlings, that’s where induction lighting is going to be most useful. Like LEDs, induction lights would require some cooling, but not nearly as much as high pressure sodium or metal halide.”

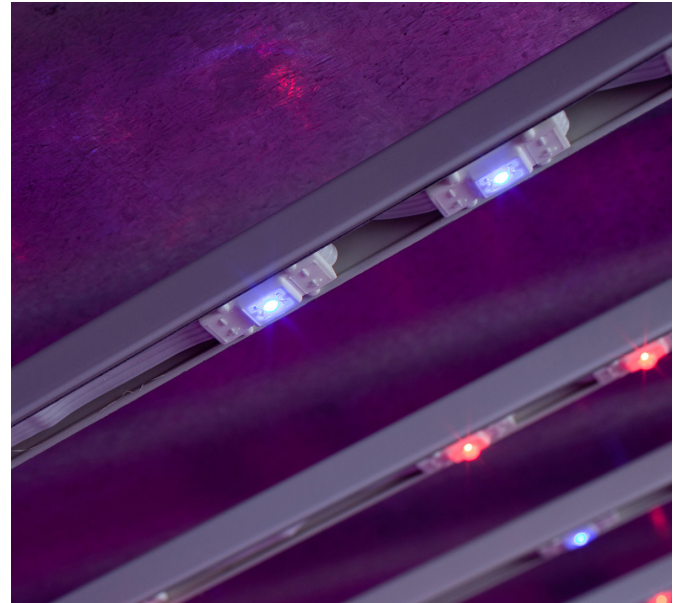
Another use for induction lamps is with the production of red leaf lettuce. That was the one crop that Frantz saw a major difference in growth.

“Red leaf lettuce responded to induction lighting by producing deeper red leaves,” he said. “I did not see much difference in plant growth in other crops like zinnia and tomatoes with the different induction lamps that I tested. The plants all grew well. They flowered all about the same time. It was all related to the amount of light rather than wavelengths with the plants I tested. I also tried a number of cultivars of lettuce.

“If a grower produces a lot of red leaf lettuce and his customers value the deep redness, they might perceive that as higher quality. In one particular grower’s case, this deep red color was what his customers valued. He felt it was justifiable to make the switch from high pressure sodium to induction lighting because he was growing red leaf lettuce and his customers valued that difference in color.” 🌱

For more: James Grouzos, P.L. Light Systems; (800) 263-0213; James@pllight.com; <http://www.pllight.com>. Johann Buck, Hort Americas LLC; (469) 532-2369; jbuck@hortamericas.com; <http://www.hortamericas.com>. Jonathan Frantz, DuPont Pioneer, jonathan.frantz@pioneer.com.

David Kuack is a freelance technical writer in Fort Worth, Texas; dkuack@gmail.com.



ABOVE: With LEDs, growers can pick the wavelengths they need depending on use and crop.
BELOW: LEDs are being used for seed germination and microgreens production.

AQUAPONICS



Surf and Turf

by spectrummag

All over the upper Midwest region of the United States, indoor aquaponics farming is catching on. Fish and plants are living and growing together in old warehouses and abandoned factories. In Chicago, The Plant is growing up in an old meat packing facility and testing LED grow lights and new control schemes. In Milwaukee, Sweet Water Organics is trying to resurrect itself outdoors after its indoor system failed last spring. And in St. Paul, the team at Urban Organics is building the world's largest indoor aquaponics operation in an old Hamm's brewery. Urban Organics plans to open in November. We'll be there every step of the way, documenting progress with our cameras. Watch for the full documentary *Surf and Turf: The Growth of Aquaponics in St. Paul* coming to a screen in front of you in November 2013.

[Read more by clicking here.](#)



To inspire healthy and sustainable living around the world, by empowering people with the technology and training to do so.

[Click here to read their blog.](#)

A Guerilla Gardener in South Central L.A.



Ron Finley: A guerilla gardener in South Central L.A.

Filmed Feb. 2013 • Posted March 2013 • TED2013

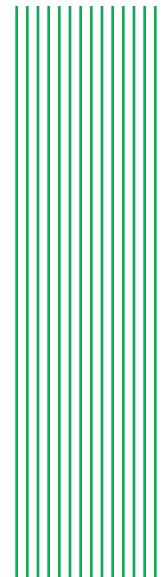
Ron Finley plants vegetable gardens in South Central L.A. -- in abandoned lots, traffic medians, along the curbs. Why? For fun, for defiance, for beauty and to offer some alternative to fast food in a community where “the drive-thrus are killing more people than the drive-bys.”

Ron Finley grows a nourishing food culture in South Central L.A.’s food desert by planting the seeds and tools for healthy eating.



Photos courtesy of Bryan Hart

STRIVING to ACHIEVE *Success* in the GREENHOUSE INDUSTRY



Industry consultant Bryan Hart talks about what it takes for growers to run a successful business and issues they are facing regardless of where they are located.

By David Kuack

Bryan Hart is a greenhouse industry consultant who has 24 years of experience working as a consultant and/or grower. He has worked with growers in seven countries, including the United States. Hart sat down with Urban Ag Products to discuss issues growers are dealing with regardless of their business size, market or location.

Q. *When consulting with new growers about starting a greenhouse business, what is the most common misconception/mistake that most growers make?*

A. The “new” grower has a number of motives to start an enterprise. In my experience the misconceptions typically relate to issues around those motives.

For example a few years ago when the recession hit and middle management personnel were being laid off, a number of new horticulture industry entrants were looking to “buy” some job security/self-determination. Typically these folks had no idea of the time inputs required to make a business happen.

Visits to successful greenhouse operations typically show neat, organized work environments growing flowers or vegetables. So many of these unemployed “would-be” greenhouse growers thought a venture

into this world would be able to provide them with the lifestyle and income they were seeking. The reality for many was quite different, including long hours, hard physical labor, struggling with supermarkets or other professional buyers and incomes that didn’t match their expectations.

Other examples of misconceptions can be large investors that see the “factory” style development of Venlo-style glass operations and think it should be all computer-controlled, weekly-programmed crop production with guaranteed ROIs. Those guys only see profit-and-loss statements and balance sheets. They forget or were unaware that Mother Nature still has a part to play in a horticultural business.

Also for large operations, people drive the business and for new builds, obtaining experienced staff to run the operation and do the crop work can be difficult. Productivity is intimately linked to staff tenure and it takes time for efficient production to get up to speed. Attaining some reality and pragmatism about production-related issues can take a while for some investors.

Q. *Is this the same misconception/mistake made by growers who are looking to start producing ornamental plants as it for growers who want to start producing greenhouse vegetable crops?*

A. Many of those issues relate to all horticultural

sectors. Over optimism or not doing all the homework isn't particular to any one group.

Q. *In terms of the various systems (i.e., heating, cooling, fertilization, environmental controls, irrigation, etc.) used within a greenhouse, where do growers make the biggest mistakes and why do you think these occur?*

A. It is difficult to generalize about technology because it constantly changes. As business models change operational requirements often change too.

The fundamental issue is trying to balance and not over-capitalizing on a "Rolls Royce" when the standard model is quite suitable, but not under-shooting the system so as not to have sufficient control. The best strategy is to decide if your business model is to be the highest production/highest technology for year-round supply or is it to be low cost/low input seasonal supply. Somewhere in there is the answer to start your planning point.

Q. *Is there any one particular area of production where you would tell a grower not to cut corners or skimp because it will end up causing him long-term problems or will end up costing him more money to resolve the issue later?*

A. Root system development is often ignored. Plant roots are hard to see and require some effort to investigate, but they drive the plant pump. You need to get down on your knees and get your hands dirty to ensure proper root development.

A poor root system always leads to problems. Consequently drainage, irrigation and substrate/growing media are critical components.

Q. *Do you think it is more difficult to start a business growing greenhouse ornamental plants or greenhouse vegetables?*



A. Both are not easy. Both require a willing buyer for the intended product. A good relationship with customers is essential to a successful business. From there it's a matter of sufficient capital and know-how to operationally pull it all together.

Q. *When consulting with established greenhouse growers, what is the most common issue/problem that you are asked to deal with or resolve? Is it the same issue for both greenhouse ornamental and greenhouse vegetable growers?*

A. Proportionally I have spent more time consulting with vegetable growers, but the most common issue is the same for both vegetable and ornamental plant growers. It is how to balance production goals with cost of inputs like energy and labor and to not overload or drive crops too fast. Achieving consistent growth,

setting and harvest for the entire crop cycle while managing inputs and maximizing profit per square meter year-round is the ultimate challenge.

Some consultants like to slash costs out of a system. Others like to drive production as hard as possible. There are risks/consequences to both strategies and matching the strategy with the business model and owner's goals is critical to success.

Q. *You have consulted with growers in various countries, including the United States. Are*

there any common issues that growers consistently have to deal with and why do you think these issues are common?

A. A common complaint from growers is “my buyer” wants this quality, but doesn’t want to pay for it. Grow to the specifications, but don’t grade produce or ornamental plants harder or you can end up going backwards.

Also, the U.S., Canada, Mexico climates have some large extremes. Developing a growing strategy to ensure crops cope with these extremes is a major significant factor.

Q. *Are there issues/problems that are unique to growers in the United States that you haven’t encountered in other countries?*

A. Not really.

Q. *The interest in locally-grown food is becoming a bigger issue in the United States. Even large retailers like Walmart are looking to buy more locally-grown food to be able to offer consumers fresher produce. What advice would you offer to someone looking to start their own growing operation (field or greenhouse) to take advantage of the rising demand for locally-grown food?*

A. Be sure you understand what your customer wants before starting down that path. Once the size of the prize is clear then travel around and visit as many growing operations as possible to learn how they do it. Once you have seen firsthand what looks right to you and similarly what you don’t like, then get some advice from an experienced consultant/grower to plan a way forward.

Q. *Is locally-grown food as important or more important in other countries or is it just a given or a matter of fact because that’s how most food is produced?*

A. Everyone is looking at their food these days. Quality, taste, freshness, security, nutritional benefits, etc., are common factors to many shoppers worldwide. Locally-grown doesn’t necessarily guarantee those things.

A professional grower could achieve all those points and ship 3,000 miles in a truck to a market on the other side of the country. But local growers should have some advantages in terms of flexibility, responsiveness and contact/relationship with customers that long-



ABOVE: A common complaint that Bryan Hart hears from growers worldwide is “my buyer” wants this quality, but doesn’t want to pay for it.

BELOW: Bryan Hart said growers often ignore root system development. Drainage, irrigation and substrate/growing media are critical components to proper root development.



distance suppliers would have to overcome. For cost of supply, both local and long-distance suppliers may have some strengths/weaknesses.

Q. *With the recent recession in the United States the interest in organic food seems to have leveled off because it's typically higher priced than traditionally grown food. Have you seen an increasing demand for organic food, particularly fruits and vegetables, in other countries or has there been a leveling off in other countries just like in the United States?*

A. Organic is as much a values system as type of food. Food safety is probably most topical now. Producing healthy food, safely in an environmentally sustainable manner is key to any business.

Q. *Genetically modified or biotech foods don't seem to be as great of a concern in the United States as in other countries like in Europe? Why do you think that is? And do you think that these foods will become more widely produced and accessible to growers worldwide?*

A. Genetic engineering is quite an emotive issue. From a technical perspective, if global population is predicted to exceed 9 billion people in 2020 then with constraints to land and water supplies, the question will arise as to how to feed everybody. There is limited land to simply convert extra forest to farmland, so productivity must increase. Genetic engineering is one tool in the toolbox available to agronomists, breeders and the broader horticultural industry to consider. The United States has been the leader in this technology so perhaps that is why it is less of a concern there. 🌱

Bryan Hart said the ultimate challenge for a grower is "achieving consistent growth, setting and harvest for the entire crop cycle while managing inputs and maximizing profit per square meter year-round."



David Kuack is a freelance technical writer in Fort Worth, Texas; dkuack@gmail.com.



CHIGGINS CONSULTANCY is a company conceived and built to provide education information to the niche commercial horticulture and hydroponics industries. This includes Vertical Farming, Urban Agriculture, Controlled Environment Agriculture, Hydroponic Greenhouse Vegetable Production and related Products and Services.



If you would like to learn more about Chiggins Consultancy or the staff of experienced industry professionals then [click here](#).



GLOBAL RELEVANCE

*According to the Food and Agriculture Organization of the
United Nations Statistical Yearbook of 2013...*

“There are **867 million chronically undernourished people** in the world today.

“**World agricultural production** has grown on average between **2** and **4 percent per year** over the last 50 years, while the cultivated area (permanent cropland and arable land) has grown by only **1 percent annually**. More than **40 percent** of the increase in food production has come from irrigated areas, which have doubled in size. Not only is the land that could be brought into production unevenly distributed over a few countries, but also much of it is characterized by significant agronomic and suitability constraints.

“In 2010–2012, about **870 million people** – or one in eight of the people in the world – did not consume enough food to cover their minimum dietary energy requirements. Of these people, **852 million** were in developing countries, making up **14.9 percent** of the total population of these countries.

“Today, **1.8 million** producers in **162** countries produce **organic products**, including crops, livestock, fish and wild harvested products. Most production in developing countries is export-oriented, providing new income opportunities for smallholders.”

A PROBLEM



Yuck - A 4th Grader's Short Documentary About School Lunch - Trailer

by maxwellproject

A brave fourth grader goes undercover to reveal the truth about the food service program at his elementary school.

A SOLUTION



Food For Thought at The Grow Haus

[Check out the full article here.](#)

The Grow Haus is an organization working in Denver to help bring healthy food options to the “food deserts” in the area. The Grow Haus uses aquaponics to effectively grow and sustain diverse gardens in an urban environment.

Love of Agriculture Realized in Hydroponic Greenhouse Operation

RANDY BUTTS SPENT 10 YEARS WORKING AS AN ENGINEER BEFORE HE MADE THE DECISION TO DO WHAT HE REALLY WANTED TO DO—BECOME A GROWER.

By *David Kuack*

Randy Butts started Eden Farms Inc. in Lebanon, Ind., in August 2006. Before starting his hydroponic greenhouse operation he got sidetracked for 10 years working as an engineer in the automation and controls industry.

“I always wanted to move beyond the engineering field and work for myself,” Butts said. “I had a deep-seated love of agriculture. For a period of time I did some traditional farming. I worked for a farmer who produced corn and soybeans.

“Unfortunately, there’s no easy avenue to get started in traditional farming today. You don’t just go out and buy acres of land and \$200,000 tractors to farm it.”

Because of the limitations he encountered with traditional farming, Butts started researching hydroponics.

“I had some friends who grew hydroponic tomatoes in the ’90s and it always kind of fascinated me,” he said. “It was kind of a marriage of my love of technology and my love of agriculture that I put together and started my own hydroponic operation.”

Butts got his business started by purchasing 5,000 square feet of greenhouses on eBay.

“They were Crop King greenhouses that I took down from the company’s facility in Seville, Ohio, and moved to Lebanon,” he said. “I left my engineering job and jumped in with both feet. And yes, I had people ask me if I was nuts. I felt I had to give it 100 percent if I was going to make it work. It has worked out, but not without its ups and downs along the way.”

Beginning with basil

When Butts started his hydroponic operation he began growing ‘Genovese’ basil in nutrient film technique channels.

“I worked with American Hydroponics on designing my system,” he said. “I was advised to start with basil rather than trying to mix the crop since I only had one reservoir for the nutrients. To try to mix crops and grow them all with one nutrient mix, the people at American Hydroponics felt it would be a major challenge for me to take on. They advised me to start with just basil. Another reason I chose basil was that it could withstand the heat of the summer.”

Butts marketed the basil primarily through wholesale distributors that shipped the product throughout the Midwest states.

“At that time my product was new enough that it garnered a lot of interest in the retail market,” he said. “Initially all of the basil I was growing was sold to wholesalers for retail distribution as living basil plants in a floral type sleeve. Most of the basil was sold to grocery stores.”

Crop diversification

Butts began to look at other crops in 2009 when he lost a major local customer that switched herb suppliers.

“That customer represented a major portion of my sales so I had to diversify quickly to basically stay in business,” he said. “Arugula and watercress are similar to the basil in production. I had trialed them and had talked to another grower who was doing this combination of crops. The watercress was an easier sell than the arugula. I had picked up a food service distributor that sold the watercress to restaurants that just love local living watercress.”

Butts said he has continued to diversify his crop mix.



Photos courtesy of Eden Farms Inc.

“Basil is still the major crop at the Lebanon facility, but we have a large section of lettuce growing,” he said. “We also have a large section of mixed greens, kale, various herbs, bok choy, mustard greens, collards, green and red sorrel and tatsoi. All of those crops are sold at farmers markets.”



Even though Butts has expanded the number of crops being grown, he still operates with only one fertilizer reservoir.

“I started experimenting with the crops to see if I could grow them on the one reservoir,” he said. “We made a few adjustments and have been able to find a nice balance that lets us grow all the crops on one nutrient mix. Bibb lettuce and some of the other lettuces were the crops that were the hardest to learn how to grow. They are the most sensitive to the nutrient mix.”

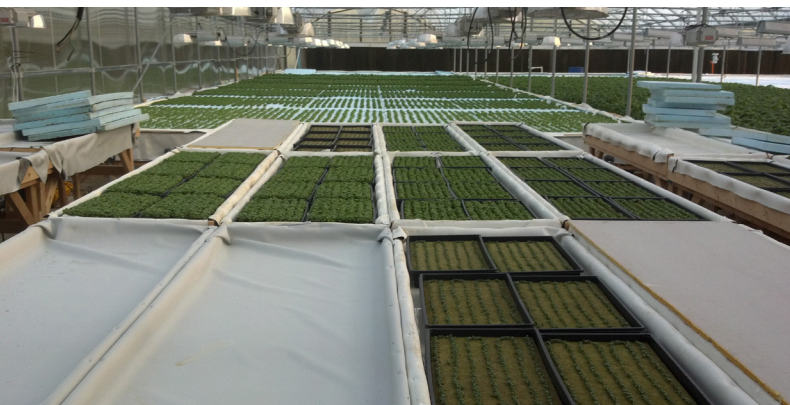
Even though Randy Butts has expanded the number of crops he is growing, he still operates his Lebanon, Ind., facility with only one fertilizer reservoir.





Randy Butts expanded his production by leasing an abandoned 22,000-square-foot tomato greenhouse operation in Raleigh, Ill. He retrofitted the houses for a deep water culture system to produce primarily lettuce.

BEFORE
AFTER



Expanding production

With his 5,000-square-foot greenhouse sitting on 5 acres of land, Butts began in 2009 to look at expanding his production facilities.

“We were on the verge of expanding here and then we started to run into problems with the county on zoning regulations,” he said. “Zoning officials wanted us to be zoned as commercial rather than agriculture. They didn’t understand what we were doing and couldn’t see the operation as agriculture. They put in a regulation that in order for a business to be classified as agriculture or a farm it had to have a minimum of 20 acres of land. Since I only owned 5 acres, Eden Farms couldn’t be designated a farm.”

At the same time that Butts was seeking to expand his Lebanon operation, he began looking at an abandoned tomato greenhouse operation in Raleigh, Ill.

“We started growing in this 22,000-square-foot greenhouse that we began leasing last year,” he said. “It was a greenhouse tomato facility in the 1990s that had been left to deteriorate. The tomatoes had been produced in grow bags, but we went in and retrofitted the houses for a deep water culture system. There are no longer any tomatoes. We are currently using half of the production space available. The majority of it is being used for lettuce, including bibb, oak leaf and lolla rossa varieties.”

One of the benefits of the Illinois facility is the availability of methane gas for heating the greenhouses. “Our landlord, who is the same person who originally grew the tomatoes, extracts methane gas from abandoned coal mines. That is our heat source,” Butts said. “Our heat, which is included in our lease, is provided 100 percent from reclaimed methane gas.”

In addition to the lettuce crops at the Illinois operation, Butts is also growing smaller quantities of basil, watercress and arugula and a few other miscellaneous crops.

“We are trialing other crops because we want to try growing them in the raft production system,” he said. “We want the Illinois facility to be able to produce a large volume of one or two commodities. The raft system lends itself better to that type of production than the NFT channels do. Channels can do it, but there is more labor involved with moving them. With the raft system we are working from ends of the pond to either transplant or harvest. There is an efficiency gained with the raft system if one large crop is grown. Pushing bibb lettuce through the pond is very efficient. If you are trying to grow multiple crops, like we are

doing in Lebanon, it's more difficult."

Even with the additional production space available at the Illinois facility, Butts hasn't given up on his plans to expand production at his Lebanon location.

"I think I learned a lot from the last zoning experience to the point that I would approach it differently," he said. "There is a possibility down the road of increasing production in Lebanon to make use of the land that is still available.

Expanding markets

Butts said he is actively working to find new customers.

"With the Illinois facility coming on board and the amount of production that we are able to produce there, we are looking for new customers and markets," he said. "The crops being grown in Illinois are being sold through distributors. We also have some direct distribution to a Kroger warehouse in Louisville."

This is the second summer that Butts will be selling at farmers markets. Crops are also sold at the farmers markets during the winter.

"We added a new market this summer that is doing great for us," he said. "Once people start to see our product in the marketplace, we have had requests from three or four other farmers markets. Trying to have a stand at each one, we just can't do them all. We have developed a lot of relationships with regular customers at these markets. They come back week after week for our products."

Butts said the majority (65-70 percent) of the produce he grows is sold through distributors. Twenty percent goes through the farmers markets, and 10-15 percent is sold directly to grocery stores and restaurants.

"I would like to have more direct distribution to grocery stores rather than relying on the distributors," he said. "Once the product is delivered to the distributors, it's out of our control and that is not always the best situation. And our return on selling direct is also higher."

Every crop that Butts is producing can be grown year-round, except for spinach.

"Spinach is the only seasonal crop that we have right now," he said. "We have a difficult time growing spinach through the summer. Through late winter it grows very well. Everything else we try to keep producing year-round so there is a consistency to our offerings." 🌱

For more: Eden Farms Inc., (765) 676-5239; randy@edenfarmsinc.com; <http://www.edenfarmsinc.com>.

David Kuack is a freelance technical writer in Fort Worth, Texas; dkuack@gmail.com.



Randy Butts markets his produce to a variety of customers including wholesale distributors, farmers markets, grocery stores and restaurants.

Community Gardens



A community garden can draw people together around two common focal points: beauty and good food. Positive garden activity creates safer communities. The criminal element can be driven out of a neighborhood by turning a trash-strewn vacant lot that is home base for illegal activity, into a place of beauty filled with positive activities.

When neighbors walk by a community garden and see their neighbors gardening, they have common interests to talk to each other about. This can lead to the formation of relationships, connectedness, safer and more positive feelings about where they live and to the development of a community where people look out for each other.



GOING GREEN IN OHIO



Green City Growers

Green City Growers Cooperative, Inc. is a 3.25-acre leafy greens, hydroponic greenhouse in the Central neighborhood of Cleveland, Ohio. The greenhouse, which officially opened on Feb. 25, 2013, has 15,000 square feet of packinghouse and office space, and is currently producing bibb lettuce, green leaf lettuce, gourmet lettuces and basil.



HORT AMERICAS LED GROW LIGHT

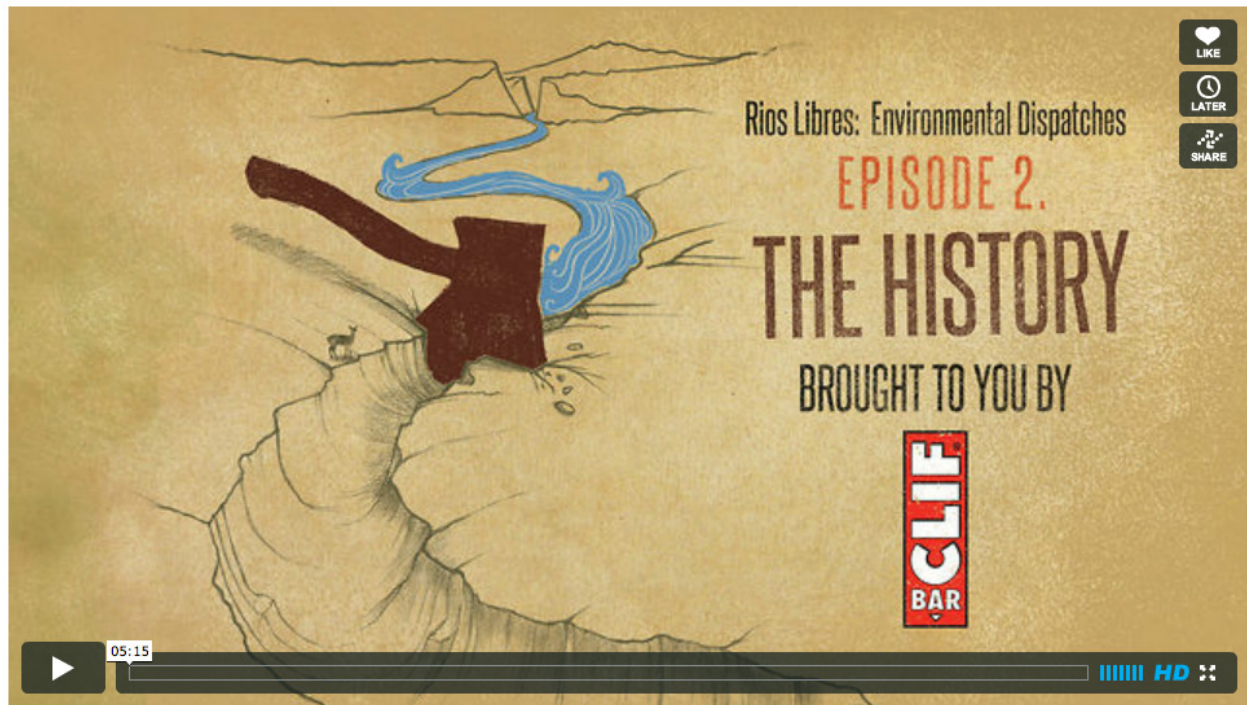
Hort Americas is very happy to be a sponsor of UrbanAgProducts.com. We feel that it is important for our industry to grow through the exchange of known information and creative ideas. We encourage everyone to get involved!

Hort Americas is proud to be a supplier of LED Grow Lights (including the Philips GreenPower Horticultural LED line) as well as numerous other products important to the commercial hydroponic, horticulture and agriculture industries. Those products include lines like Smithers-Oasis Horticultubes, Grodan Rockwool, Riococo Hydroponic Coir products, Bato Products and Orchid Mixes and Substrates from Hort Americas and Slingerland.

To learn more about supplemental lighting such as LED Grow Lights, High Pressure Sodium and other horticultural lighting options please contact:

Hort Americas, LLC | 1304 West Eules Blvd., #200 | Eules, TX 76049 | 469.532.2383 | HortAmericas.com

Environmentally Concerned



Rios Libres: Environmental Dispatches – Episode 2, The History from Patagonia

Episode 2 of the short online series “Rios Libres: Environmental Dispatches”. In this episode we explore America’s love affair with the dam, its outdated technology, and what damming the river would mean logistically for Patagonia and its inhabitants. At what cost does this industrialization come at for the people and the environment? For more information, please go to rioslibres.com.

Ag Education providers



Some of our sponsors



Grow your Leads through Online Marketing

Witmer Group, a proud sponsor of Urban Ag Products, provides the creative, detail-oriented, marketing exposure your products need to get noticed by the right people at the right time. So many factors play into executing a successful Urban Agriculture Process.

You are literally starting from the ground up and you need the right tools to help your business garden grow! To learn more about the Witmer Group and how they can help grow and manage your business [click here](#).

It's not what you grow, it's what you grow it in.

For nearly 50 years, OASIS® Grower Solutions has pushed the horticulture industry forward with the most advanced, problem-solving propagation media available – to make growing easier and more fun for growers at every level. Since revolutionizing the market in 1954 with the very first water-absorbing foam, we've never stopped innovating—always developing exciting new products with the growers' success as our ultimate goal.

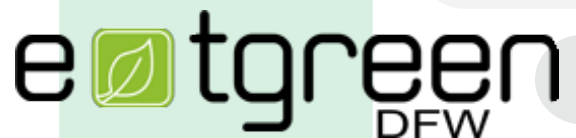
To learn more about how we can help you, give us a call at 800-321-8286 or visit us at OasisGrower.com or www.horticubesXL.com.



Asa Wright is a production company in the Dallas area with a passion for cinematic filmmaking. With roots in extreme sports and wedding videography, and branching into animation and graphic design, we have a unique perspective and love what we do.

Email info@asawrightproductions.com for additional information.

Eat Green DFW is dedicated to helping entrepreneurs involved in the local food system in North Texas connect with the kinds of consumers who appreciate the value of locally raised or prepared food. If you are a farmer, rancher, artisanal food producer or gardener, we can help you develop better ways to reach consumers in North Texas while maximizing your profits. Through Eat Green DFW, we are dedicated to helping small, local food producers succeed. eatgreendfw.com | 7228 Holyoke Dr., Dallas, TX 75228 | 214-295-7463





URBAN AG PRODUCTS

News on Technology for Vertical, Controlled Environment & Urban Farming

URBANAGPRODUCTS.COM