

# Hot Topics ▶▶

AGRICULTURE EDITION

**Delta T Solutions**  
Engineering, Integrating, Innovating Systems



## Why Greenhouse Veggies? Why *Not*?

Veggie demand is more than just a trend. With increasing governmental and public support, vegetable production is on the rise in greenhouses nationwide. Is it right for your operation?

**T**here's a reason why so many ornamental growers are adding veggies to their crop mix. Edibles are the fastest growing sales category in retail garden centers, with no signs of slowing down, and farmers' markets selling locally grown fresh produce are popping up everywhere. According to USDA's Agricultural Marketing Service, as of mid-2011 there were 7,175 farmers' markets operating throughout the U.S., a 17 percent increase from 2010. Consumers continue to seek out sustainably and locally grown produce or grow their own — and chances are, they're not going to stop.

### **EDIBLES ARE HOT**

It all started with the recession. Homeowners who wanted to curb costs by growing their own food began planting their backyard space and containers with food, instead of flowers. Growers and retailers already selling veggies experienced an increase in sales, yet no one really expected veggies to be a viable, ongoing category.

But then, it stuck. Consumers were having fun getting “back to the land” and having a role in their own food production. In addition to saving money, they felt good about knowing where their produce came from — whether they grew it themselves or bought it at

**17%**  
Increase in the percent of new farmers' markets in the U.S. between 2010 and 2011

**45%**  
Of survey respondents acquired fresh fruits and/or vegetables from their own garden

a local farmers' market. Amidst food safety scares and growing concern for the environment, locally produced food is perceived to be safer, more accessible and better quality, with a reduced environmental footprint.

Add to that a heightened awareness of health issues like cancer, heart disease, type 2 diabetes and the growing obesity epidemic, and consumers have begun to see food as more than fuel. Rather, many consumers now consider vegetables, herbs and fruit as preventative medicine, and as a result, Americans are eating more fresh produce today than they did five years ago, according to a recent poll by the W.K. Kellogg Foundation.

### **VEGGIE DEMAND BY THE NUMBERS**

The growth in veggie consumption in recent years is supported by some strong data that American attitudes toward the availability of fresh produce and food prices are looking up.

Results from a poll commissioned by the W.K. Kellogg Foundation in April 2012 showed 70 percent of respondents purchased fresh produce from a farmers'

market or stand in the past year, while 45 percent said they acquired fresh fruits and/or vegetables from their own garden.

Sixty-three percent of respondents said they know a lot or a little about where their fresh fruits and vegetables come from and 89 percent said their source for fresh fruits and vegetables is within walking distance or is a short drive away. Sustainable production matters to consumers, as well, with 64 percent who want their produce to be grown in an "environmentally friendly way" and an equal 64 percent saying it's important that produce be organic.

Americans are also empathetic toward the less fortunate and willing to spread the benefits of veggies, as 93 percent of those surveyed said they think all Americans should have access to fresh produce. Seventy-five percent said they support a national program that

# 7,175

Number of farmers' markets in the U.S. In 2011

# 70%

Of survey respondents purchased fresh produce from a farmers' market/stand in 2011



Howard Prussack, owner of High Meadow Farms in Putney, VT, grows certified organic herbs, berries, and vegetables, as well as other plants, year round in hydroponically (hot water) heated greenhouses.

would double Supplemental Nutrition Assistance Program (SNAP or food stamp) benefits at farmers' markets.

The USDA sees this as a priority, as well, recently giving more SNAP participants the ability to spend their benefits at farmers' markets, starting with granting funds to equip farmers' markets with wireless point-of-sale equipment. This equipment will allow SNAP customers to purchase items at farmers' markets using their Electronic Benefits Transfer cards, and help markets overcome obstacles to electronic transactions.

Ultimately, these grants will help as many as 4,000 farmers' markets nationwide while benefiting local economies. According to USDA, every \$1 in new SNAP benefits spent can result in up to \$1.80 in total economic activity.

Specialty crops are getting more support from the government, as well, with the Agriculture Reform, Food and Jobs Act expected to include programs supporting essential research, market promotion and nutrition, and continued support of specialty crops that was established in the 2008 Farm Bill. The legislation maintains funding of the Fresh Fruit and Vegetable Program, which provides fresh produce snacks to more than 3 million school children each day. It also includes key specialty crop industry priorities that enhance growers' ability to be competitive and meet demand.

## HEALTHIER GREENHOUSE VEGETABLE PRODUCTION

Despite the increasing dialogue about fresh produce and its health benefits, consumers have not forgotten about food borne illness outbreaks over the past few years, and the majority was relieved to see food safety legislation passed in 2011. The FDA Food Safety Modernization Act (FSMA), the most sweeping reform of our food safety laws in more than 70 years, aims to ensure the U.S. food supply is safe by shifting the focus from responding to contamination to preventing it. While Best Management Practices and HACCP (Hazard Analysis and Critical Control Points) standards have been implemented in most operations, growers continue to face challenges developing their own food safety plans, including increased expense and management and labor issues.

Add to this the obstacles of increasing water shortages and urban development encroaching on farmland, and field production is not getting easier. By 2050, the world will inhabit more than 9 billion people with more than 400 million in the United States alone. Growers nationwide will be required to produce twice as many crops with 30 percent less land available.

Greenhouse production of fruits and vegetables, also known as “controlled environment agriculture,” has these advantages:

- More consistent production and crop quality
- Year-round growing
- Healthier plants, and
- The ability to conserve water and reduce need for fertilizers and chemicals.

A controlled environment safeguards crops against potential contaminants and can yield as much as 10 times more crops per acre than field production for some crops, according to yield data from the University of Arizona’s Controlled Environment Agriculture Center.

## ARE VEGGIES RIGHT FOR YOUR BUSINESS?

With all of this demand and support for veggies, you may wonder if this niche is right for your operation. Growing produce, whether it is starter plants for consumers or actual vegetables and fruits that you can harvest and sell, can be a good fit for ornamental growers with idle time between crops. Greenhouse vegetable producers have been successful selling a variety of crops including tomatoes, leafy greens, summer squash, zucchini, cucumbers, radishes, strawberries and raspberries, among others. Growing produce is a viable option for increasing revenue, as long as you do your homework, know the market and invest in the necessary production tools.

**1 Know Your Market.** Determining what to grow depends on where you plan to sell your crops. Some options include grocery stores, co-ops, farmers’ markets, specialty markets and garden centers. Grocery stores are typically the hardest to break into and the most price sensitive, while garden centers and local markets are more concerned with quality and locality. Ethnic markets in search of specialty vegetables have potential if crops are rare, but risk and production costs have to be weighed against profit.

**PROFILE:** Matt Goff, Operations & Maintenance Manager, Gritt’s Midway Greenhouse, Red House, WV



**MARKET:** Produces and sells 90 percent of its hydroponic tomatoes and English cucumbers, to Kroger stores within a 120-mile radius — the remaining 10 percent are sold to independent grocers, restaurants, and individuals through two retail locations.

“Vegetables are more lucrative than ornamentals due to a better income for the product per square foot of greenhouse space; however, we don’t have a large enough demand to convert all of our efforts/space to vegetable production.”

**A LEAP OF FAITH:** Doubling the growing space to expand the hydroponic tomato business was a risk, but one that has paid off for Gritt’s. The operation grows tomatoes year-round and English cucumbers in summer and fall.

“We have a good market for continuous sales,” Goff says. “Sometimes the summer field tomatoes impact our sales, but if we keep the quality and flavor high, our sales stay fairly consistent. The greenhouse allows us to control the quality and disease concerns by being in control of the environmental conditions and nutrition.”

Marketing crops as locally grown has helped the business, Goff says, and with the operation’s small size and proximity to its market, the fact that it can handpick, pack and ship ripe tomatoes, and have them in front of consumers within two days, helps.

**DELTA T HEATING PROFILE:** The hydroponic greenhouse includes a hydronic heating system, powered by two Futera Fusion Model CB 3800 condensing boilers, with one 8800 Series Model HB3600 two-pass heater that provides back-up heat. Delta T also designed the floor level heating, grow pipe heating, mixing valves and associated piping.

For more information about Gritt’s Midway Greenhouse and its vegetable operations, visit [www.deltatsolutions.com/enews/SpendNowSaveLater.html](http://www.deltatsolutions.com/enews/SpendNowSaveLater.html)



Growing healthy, high-quality plants in a consistent environment is the goal, so use the most efficient method of delivering heat directly to the plant — hydronic heat.

## Diversifying Into Veggies – A Checklist

- Know your market
- Determine what crops you will grow
- Learn about production methods
- Research food safety rules
- Consider using hydronic heating
- Check with your insurance agency
- Research crop inputs and food safety requirements
- Consult with Extension experts and established growers
- Incorporate environmental controls for maximum control.

**2 Research Safety And Legal Requirements.** If you're used to growing ornamentals, growing edibles for consumption requires understanding food safety mandates and growing accordingly. Check with your insurance company to find out what liability coverage you'll need. Further, because fewer pesticides are labeled for greenhouse vegetable use, sanitation and pest monitoring and control are important. Beneficial insects and other Integrated Pest Management strategies are recommended.

**3 Control the Environment.** Assume you may need to make some changes to your ornamental production systems to grow veggies. Consult Extension experts and other growers with experience to learn how to successfully incorporate produce. Growing healthy, high-quality plants in a consistent environment is the goal, and though energy costs are typically always high for greenhouse production, hydronic heating allows you to efficiently control your growing environment by heating the greenhouses, starting at the soil level, ultimately saving 40 percent in fuel efficiency savings over forced air heating.

Hot water (hydronic) heat delivers heat right to the plant, under bench

or embedded in the greenhouse floor, resulting in accelerated rooting and plant growth, reduced disease and improved plant quality, and increased crop yields. It also offers the flexibility to heat by zone.

### LET US HELP

With more than 20 years of experience designing heating and irrigation systems for the controlled environment, Delta T Solutions understands the unique needs of your business.

Delta T Solutions' greenhouse growing expertise includes:

- Hot water radiant heat systems, design, and components
- Complete irrigation and water management systems

# 64%

Of survey respondents want their produce to be grown in an 'environmentally friendly way'

- Customized bio-based growing system with portable, compost-filled mesh containment
- Installation supervision or optional installation

We can provide guidance in helping you determine what kind of products and systems will be most effective for growing greenhouse vegetables, and we offer customized solutions, including design, build and installation services. Contact a Delta T Solutions representative by calling 800-552-5058 or email [info@deltatsolutions.com](mailto:info@deltatsolutions.com). ▲



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