



HACCP FEASIBILITY - 2009

HACCP FOR SALAD GREENS:

Appropriate for MA farms?

Made possible with support from
Federal-State Marketing Improvement Program
and
Massachusetts Department of Agricultural Resources

Contact: Jessica Cook, Program Coordinator
1 Sugarloaf Street South Deerfield MA 01301
(413)665-7100
www.buylocalfood.com



CISA **community**
involved in sustaining
agriculture

Executive Summary	3
Introduction	5
<i>Farmer & Consumer Focus – finding common ground</i>	5
<i>Objectives</i>	5
<i>Assumptions</i>	6
<i>Audience</i>	6
<i>Local context</i>	6
<i>Partners</i>	6
WHAT IS HACCP?	7
Background	7
<i>Definition</i>	7
<i>Prerequisite Programs</i>	7
HACCP and Ready-to-Eat Salad Greens	7
<i>Industry Context/Standards for Salad Greens</i>	8
Approaches to HACCP	9
<i>Audits</i>	9
Marketing	10
Feasibility of HACCP – Costs & Benefits	11
<i>Potential Benefits</i>	11
<i>Potential Challenges</i>	11
<i>Potential Costs</i>	12
Operational Feasibility & Resources	12
Recommendations & Success Factors for Farmers	13
Appendix	14

EXECUTIVE SUMMARY

As part of CISA's mission to contribute to farm viability by linking farms and markets, we provide technical assistance to farms to understand, negotiate, and respond to buyer requirements. In the last year we have focused project activities on emerging industry standards for ready-to-eat salad greens which have affected local farmers most acutely in their dealings with Whole Foods, and which are currently at the nexus of several proposed pieces of food safety legislation at the national level. In this context, CISA wanted to learn how HACCP audit requirements and other food safety protocols were going to affect local growers, and develop tools to make the learning curve more manageable for diversified local farms, or to substantiate advocacy for more appropriate standards.

While local Massachusetts farms do not mix and pack greens from multiple farms in high volume – a practice which has proliferated out West – buyers are requiring the same one-size-fits-all food safety protocols of local growers to respond to 2006 E coli outbreaks and corporate liability concerns. While a proliferation of food safety programs has emerged to address potential risks on large industrial farms and packinghouses, smaller farms in New England do not have the marketing clout or industry associations to develop and promote scale-appropriate and balanced standards to their wholesale clients.

CISA researched the feasibility of complying with industry standards for third party-audited HACCP plans, basing assumptions on the current infrastructure available to most local farms producing salad mix. These findings can inform regional efforts to develop and advocate for locally-appropriate standards, and provide local farmers with a broader context for their business decisions related to the recent hype about food safety and quality control for salad greens.

- *HACCP has limited market appeal* – Currently HACCP audits have limited currency with many wholesale buyers in western Massachusetts who source local greens, based on CISA's targeted market study. HACCP is most commonly required in large-volume wholesale markets and affects only a few of the higher-margin markets available to smaller growers in our region. Depending on a farm's resources, upgrades to meet HACCP prerequisites may outweigh margins from selling to these markets.
- *Evolving food safety legislation poses challenges* – Several other post-harvest handling protocols may bear more heavily on local farms than individual wholesale accounts' HACCP requirements. At this time regulatory tides are shifting, heavily influenced by industry associations, making it difficult for growers to know what programs to comply with. Hearings for the proposed National Leafy Greens Marketing Agreement¹ are underway as this publication is released in the fall of 2009 and HR 2749 proposes fees and computerized tracking systems for all food handlers.
- *HACCP planning is feasible* – Farmers may find basic HACCP plans to be useful tools for reviewing and improving on-farm processes to fill a number of goals including food safety, efficiency, and quality assurance. They require time and research, and expert review and input.

¹ For more information about the proposed marketing agreement and hearings go to www.ams.usda.gov.

While some of this comes at a cost, there are some resources available at the state level and CISA has developed some tools to start with.

- *Prerequisites may require significant investment* – HACCP is based on the assumption that several prerequisite programs are in place to reduce hazards throughout planting, cultivation, harvest, post-harvest and packing operations. Upgrading these systems to meet Good Agricultural Practices (GAPs) and Good Manufacturing Practices (GMPs), and to have Standard Operating Procedures (SOPs) in place can be a costly endeavor, including investments in management, documentation, facilities, equipment, and staffing.
- *Third party audits are a mixed bag* – Audit requirements vary greatly depending on the type of audit and the auditor company. It is important for farmers to clarify audit options with buyers and propose reasonable options to meet their standards. Most of the third part auditing firms commonly used by retailers model their audits and expectations on industrial-scale food processing facilities, and do not have sufficient experience or scientific references on smaller-scale diversified farms to make informed decisions about appropriate measures.

INTRODUCTION

The mission of Community Involved in Sustaining Agriculture (CISA) is to link farmers and communities to strengthen agriculture and enhance the economy, rural character, environmental quality, and social well-being of western Massachusetts. In this field of work CISA has found that critical pieces of infrastructure need to be redeveloped in order to span the distance between fields and dinner plates.

In 2006, CISA found that some local growers were losing profitable markets as retailers imposed stricter requirements on all salad greens suppliers after E. coli outbreaks in nationally-distributed spinach. This came as yet another reminder of how limited local packing and processing infrastructure, and an entrenched industrial food system, can be major barriers to bringing local farm products to consumers.

FARMER & CONSUMER FOCUS – FINDING COMMON GROUND

CISA's goal is to promote local products and ensure a level playing field for local farms accessing local wholesale markets. We want to work toward standards that are appropriate to small farms in our area, and recognize the nuances of a system where product is distributed in tighter circle and producers are more directly accountable to their customers. At the same time, we do not discount the possibility of contamination since no scale of farm or type of production is immune to pathogens. We hope that the resources we develop will help farmers to ensure due diligence in packing practices, promote informed decisions by consumers, and support well-guided advocacy efforts by all stakeholders in the region.

OBJECTIVES

As the produce industry started to ratchet up their handling protocols for leafy greens, CISA chose to research the feasibility of meeting specific retailer requirements for growing and packing ready-to-eat salad greens. From a viability standpoint, does it make sense for local salad greens producers to upgrade their systems and facilities to meet emerging industry standards? We wanted to look into the tangible costs and benefits of these requirements for area farmers, as well as take a step back and think more broadly about industry standards for food safety and their implications for regulation at the local, state, and federal levels.

The following questions guided our work:

1. Market – What market opportunities and which buyer requirements will influence local farms most? What buyers are changing their food safety requirements, what they looking for, and what could be done to improve the odds of local farmers selling to larger wholesale markets?
2. Protocols – What do third-party audited HACCP plans look like for on-farm packing of salad greens? What does it mean in terms of physical and organizational changes on the farm? Is there a practical, middle-of-the road option that applies to the distinct offerings of small-medium scale New England growers?
3. Feasibility – What are the costs and benefits and options for complying with buyer demands related to third-party audited HACCP and prerequisite programs like GAPs and GMPs?
4. Readiness – What tools can we develop for farmers to better understand HACCP and prerequisites, review equipment and facility upgrades, determine costs, determine business fit,

draft HACCP plans, and research auditors? How can we reduce some of the barriers for compliance?

5. Proposed Standards – What information can be used to develop a foundation for reasonable standards for Massachusetts farms – what standards could work for farmers and consumers?

ASSUMPTIONS

CISA defined the scope of this project with the following parameters:

- Raw/unprocessed, ready-to-eat salad greens – We focused on mixed baby greens, including spring mix, mesclun, baby brassicas, mustards which have not been modified or processed because they fall into a unique combination of raw agricultural commodities (regulatory category) at the same time as ready-to-eat (retailer category). (get descriptions of this dilemma from proposal?)
- On-farm packing – We emphasized post-harvest handling on-farm because most greens, other than winter-harvested greens, require hydrocooling, a process that would be managed by prerequisite protocols like GMPs, which would be duplicated at an off-site packing location.
- Third-party audited HACCP – We researched the most challenging requirement we witnessed amongst sizeable accounts for local growers, including one of the national chains looking to source local products and with a reasonable return for farmers.

Audience

We decided to pursue this research on the behalf of farmers in western Massachusetts. We worked primarily with small-medium scale diversified farms that produce unprocessed salad mix, who expressed concern about the unknowns of future retailer requirements and proposed legislation after national food safety scares. They wanted to know – is it worthwhile exploring HACCP? Will it make business sense to upgrade or formalize on-farm packing to meet auditor requirements?

Our research into HACCP and prerequisite programs can also assist larger-scale farms in our area that are currently producing head lettuce and other vegetables, and might be considering fresh-cut operations for a range of different types of produce.

At the same time, several working groups around the Northeast have been assessing GAPs and others were tracking proposed federal legislation related to food safety, and CISA’s work on industry standards related to HACCP contributed one more piece of the puzzle to the regional conversation.

Local Context

To our knowledge, no small-scale greens growers who sell ready-to-eat salad mix in Massachusetts have pursued or succeeded with third-party audits of HACCP plans. There are large-scale salad processing facilities in the state and in New England processing under their own label. There are also wholesale growers who sell head lettuce and fresh-cut vegetables who may be interested in learning more about buyer interest in HACCP and developing new product lines for cut lettuce salad mix.

Partners

We would like to acknowledge the contributions and collaboration of a range of partners, including Brian Norder and the Vermont Food Venture Center, Old Friends Farm, Locally Known, Atlas Farm, Cape Cod Organic Farm, Pete’s Greens, Silliker Inc., MOFGA, Steve Gilman, UMass GAPs team, and Rutgers. Funding and program support was provided by the Massachusetts Department of Agricultural Resources and the Federal-State Marketing Improvement Program.

WHAT IS HACCP?

BACKGROUND

Farmers who want to produce ready-to-eat salad greens for sale to retail outlets, distributors, or institutions such as hospitals or schools, may find that today their wholesale customers² demand that salad greens be grown and packed in compliance with food safety and quality assurance programs such as HACCP, Hazard Analysis and Critical Control Point. With a recent history of food scares of industrially processed produce, most notably several widespread cases of contamination of packaged spinach traced to California in 2006, some buyers are requiring these one-size-fits-all food safety certifications from all their suppliers.

Definition

HACCP is defined on a USDA website as a: “production control system for the food industry. It is a process used to determine the potential danger points in food production and to define a strict management and monitoring system to ensure safe food products for consumers. HACCP is designed to prevent potential microbiological, chemical, and physical hazards, rather than catch them.”³ Experts like to point out that the focus on prevention distinguishes HACCP from other food safety or quality assurance programs. The current form of HACCP is based on a program first developed by the Pillsbury Corporation and NASA in 1959 to ensure the safety of food in space programs, but has been adapted for the food industry, and is now required for meat, seafood, and juice according to USDA/FSIS and FDA rules⁴.

Prerequisite Programs

Several food safety programs lay the foundation for a hazard analysis and are generally considered prerequisites for HACCP planning. These include Good Agricultural Practices (GAPs), Good Manufacturing Practices (GMPs), and Sanitation Standard Operating Procedures (SSOPs). These programs and their relationship to each other are described in more detail in a summary document developed for CISA by Brian Norder of the Vermont Food Venture Center (*see Audits for On-Farm Processing*). CISA has compiled a number of useful resources for GAPs, GMPs, and SSOPs, including template documents (*see Operational Feasibility for more information*).

HACCP AND READY-TO-EAT SALAD GREENS

HACCP plans and/or audits are **not currently mandated** by federal or state regulation for salad greens⁵. This means that HACCP planning is voluntary for salad greens producers, up until the point that a buyer requires an audit from a farmer. Local and state regulations do not require HACCP for salad greens, and distinguish between raw and processed products. Requirements related to food processing are generally more stringent than for raw agricultural products, and apply only to

² You can find more analysis of the local market for salad greens and food safety requirements in our Market Study.

³ http://fsrio.nal.usda.gov/document_fsheetsheet.php?product_id=155

⁴ Ibid.

⁵ It is important to note that recent proposed legislation and FDA guidance documents have adopted elements of rigid food safety protocols like HACCP, and proposed legislation may change the definition of food processing facilities.

practices that change the form of the final product through cutting, chopping, cooking, etc. Therefore, baby salad greens that are harvested, rinsed, spun dry and packed are considered raw products and under current interpretation, local and state-level food processing regulations do not apply.⁶

Some retailers are requiring protocols - such as third-party audited HACCP - for the packing of raw agricultural products that are also considered to be ready-to-eat (RTE) products. HACCP is considered an industry standard for salad greens, since it is not government regulation. However, there are challenges in applying HACCP to raw salad greens, when it has typically been reserved for processed or fresh-cut produce or items considered hazardous like meat and seafood.

We should note that many HACCP experts that we've spoken with, including regional Department of Public Health officials in Massachusetts, Cooperative Extension agents, USDA personnel, and industry players question the applicability of HACCP to raw agricultural commodities, like mesclun, baby greens, and other salad mixes, since there is no "kill" step as there typically is with processed foods. We have also found that when HACCP experts apply their approach to a raw product, the lines become blurred between prerequisite programs and the specific advantages provided by HACCP, and HACCP plans tend to reinforce GAPs and GMPs. Additionally, there is not sufficient science to show the different conditions and risks to be mitigated on small-scale on-farm packing operations compared to large aggregated processing plants.

Industry Context/Standards for Salad Greens

Third-party audited HACCP has been adopted by some retailers and institutional buyers as the highest standard of quality assurance, an action that is effectively promoted by food safety audit firms and industry representatives. At the time of this research, the industrial food system relies on consolidated processing and packing of salad greens, long-distance shipping and extended shelf-life to get the bulk of the nation's salad greens from California and Arizona to consumers' plates. While no measures can fully eradicate pathogens, specific conditions related to industrially-scaled growing and handling practices have led to widespread food scares and pathogen outbreaks. In response to these challenges, industry groups are lobbying for regulations that adopt their own industry-driven standards (developed initially through the California Leafy Greens Marketing Agreement process) which they have developed for assessing large-scale facilities processing thousands of pounds of mixed salad greens per day. It is notable that the scale of these operations affords them a significant advantage compared to smaller farms in regards to investments in facilities, equipment, training, management practices, and audits.

Advocates for smaller and diversified farms, such as Community Alliance with Family Farmers (www.caff.org) and Maine Organic Farmers and Gardeners Association (www.mofga.org), have countered the push for one-size-fits-all standards. Unless the regulatory landscape changes dramatically in the near future, local farmers have some choices about how they approach food safety and quality assurance planning on their farm.

⁶ For certified Organic salad mix products, individual certifiers have the jurisdiction to distinguish between post-harvest handling procedures and "processing", and may require an organic handling system plan of salad greens growers if they deem necessary. Keupper, George, Holly Born, and Anne Fanatico. "Farm Made: A Guide to On-Farm Processing for Organic Producers". *The Kerr Center for Sustainable Agriculture*. 2009. p.24.

APPROACHES TO HACCP

In its most basic form, HACCP is a tool for risk analysis and prevention in food processing. With some essential basic steps and a linear framework, HACCP can provide food producers with a format for assessing and controlling hazards, based on references to scientific evidence⁷.

The rationale for pursuing HACCP, as well as the target audience for completed plans, will ultimately determine relative feasibility for individual farms. Depending on the producers' objectives, HACCP planning will be undertaken to apply controls to different types of hazards, and can follow the format of a self-audit, a local audit or audits designed to meet international food processing standards (e.g. Primus).

Farmers and food processors may have different reasons for taking on HACCP planning:

Self-audit/Business improvements

Farmers may use the HACCP planning process as it was originally intended - a proactive approach to assess risks, provide data on product quality and production, identify areas for improvement in terms of due diligence and consistently manage product quality and efficiency. Through this process it's also possible to set farm-based records and establish an internal testing regime to validate farm practices. This approach may help farmers minimize risks and maximize confidence in their product and practices. Practically speaking, HACCP planning could provide an opportunity for food producers to step back and look at their operation and make systematic improvements for enhancing food safety and quality assurance – after baseline programs have been put in place.

OR

Third-party audit/Buyer requirements

Farmers may use the HACCP planning process and eventual 3rd party audits to enter specific markets, such as national chains, regional distributors and local institutions that may state specific HACCP-related requirements in their purchasing agreements. In this case, farmers will be more attentive to the requirements of particular auditors, reviewing audit scoring sheets, using templates prepared by auditing firms, and gaining insight into the particular auditing services they intend to use.

CISA's work has focused on third-party audited HACCP as this is a requirement for tangible marketing opportunities, and may open doors with specific buyers. To illustrate feasibility, we worked with Silliker's consulting services to develop a HACCP plan for salad greens, with the ultimate goal being to fulfill Whole Foods' vendor requirements.

Audits

Third-party audits for HACCP and prerequisites differ dramatically between auditors and types of audits. A HACCP verification audit will be different from a packinghouse audit or a GMP audit – and the specific content depends on the identity of the auditor and their target audience. HACCP is a flexible tool, but a range of auditors offer the industry their services in preparing, validating, and verifying plans according to their own internal standards. A partial listing of auditors with HACCP-type programs include:

⁷ In some cases, farmers can use their own documented procedures and pathogen test results to develop evidence of the strengths and weaknesses in their operations, and ultimately verify their practices.

- AIB
- Primus
- SQF
- Silliker
- Scientific Certification Systems (SCS)
- Carver Research Associates
- Nova
- American Food Safety Institute (AFSI)

CISA is also exploring the possibility of local auditors who may be more attuned to local conditions including types of agriculture, target markets, and scale, and who might be available to provide technical assistance to farmers and food producers in preparation for audits. MOFGA is also considering offering these services as part of organic certification⁸. The question here is whether large buyers will recognize the qualifications of regional auditors or stick to nationally-known firms.

Because salad greens production is an “unregulated” industry, farmers need to ask their buyers for their specific audit requirements. Farmers can propose a particular audit that fits with their operations and appears most feasible and see if it is acceptable for meeting the requirements of their vendor agreement.

The type of audit can significantly impact the feasibility for the farmer. For instance – the Silliker audit for GMPs or SQF audit are much more detailed and processing facility-oriented. If GAPs and GMPs are developed and reviewed (or audited) by a food safety expert, Silliker can be contracted to perform a HACCP Verification Audit, focusing on HACCP for packing activities and verification of the Critical Control Points and scientific references in the plan, with a cursory review to ensure that GAPs and GMPs are in place as required to cover noted hazards.

Marketing

There is a limited, but attractive local market that currently requires HACCP for salad greens. Beyond this one retailer, however, the only evident marketing advantage provided by third-party audited HACCP is targeted to other wholesale accounts, such as institutions but the scale of salad greens production and pricepoints do not usually match small-scale farm conditions. Support in pursuing HACCP may provide stronger benefits to wholesale farms looking to process lettuce for pre-bagged salad mix or grow baby greens. HACCP audits do not provide advantages for direct marketing and consumer appeal. More information available in CISA’s *Salad Greens Market Study*.

⁸ http://www.growingformarket.com/articles/20090428_1

FEASIBILITY OF HACCP – COSTS & BENEFITS

Individual farmers must consider a number of factors when deciding whether or not to implement changes on the farm necessary for third-party audited HACCP and prerequisite program requirements. The feasibility of effectively implementing HACCP – as well as essential prerequisites GAPs and GMPs - depends on variables such as farm facilities, management capacity, division of labor, current record-keeping practices, market potential and demand for HACCP, specific auditors required, etc. While each situation is unique, CISA has developed a list, below, of considerations to take into account before signing up for HACCP consulting services. For a more detailed self-assessment for pursuing HACCP, see *Farmer Self-Assessment*.

Potential Benefits

- ✦ *Recapture wholesale markets* lost because of food safety requirements introduced after nationwide E. coli outbreaks, and gain new wholesale markets
- ✦ *Farmer confidence* in food safety and traceability – used as a tool for thoughtful and systematic review which can increase accountability and quality assurance
- ✦ *Marketing advantage* using a common language with wholesale buyers.
- ✦ *Informed and prepared* – Stay informed on the direction of industry standards and understanding potential impacts on the farm business, and being prepared to articulate appropriate expectations

Potential Challenges

- ✦ *Increased costs* – one-time and ongoing (see *Economic Feasibility* section)
- ✦ *Farm Culture* – Compromise of individual work style or business culture to meet formal standards
- ✦ *Marketing disadvantage* – investment in HACCP does not equate directly to increased consumer interest, and many markets interested in local food are interested in a broader range of food production questions than HACCP
- ✦ *Raising the bar* – advancements related to HACCP may raise the profile of salad greens operations and inadvertently raise the bar by setting the example for authorities that may choose to develop their own requirements
- ✦ *Proliferation of standards* – because industry standards are constantly shifting, growers may have to make adjustments at the whim of buyers and auditors. Farmers who decide to undergo preparations and audits for HACCP plans through any particular purveyor or food safety lab are gambling that the standard will become more universal in the future. Current trends suggest that requirements continue to evolve.
- ✦ *Industry influence* – recent policy recommendations advocated by trade associations for industrial agricultural are influencing regulations that work for big producers and disadvantage small producers
- ✦ *Volume* – Scaling up to meet the volume and pricepoint required by the market that demands HACCP in the first place may not make business sense for all farm enterprises
- ✦ *Prerequisite Barriers* – Prerequisite programs, particularly GMPs, can be a major barrier for farms, particularly if new legislation would consider on-farm packing of salad greens to be a “processing” activity. Food processing requires a much stricter set of requirement revolving around food-contact surfaces, designed facilities, and trained staff.

Farmers must also evaluate the specific costs of changing their operations in order to comply with the terms of third-party audited HACCP plans and prerequisites, and whether those costs can be offset by sales. General cost categories include:

Potential Costs⁹

One-time

- ✦ Growing/harvesting/packing modifications
- ✦ Facility construction or renovation
- ✦ Packing & storage/transport equipment
- ✦ HACCP training for farmer and employees

On-going

- ✦ Additional labor for packing (due to segregation of duties)
- ✦ Food safety management/staff and training
- ✦ Documentation/admin time
- ✦ Packaging supplies, labels, and other materials
- ✦ Testing (e.g. water, batch samples)
- ✦ 3rd party HACCP audits/state and local licensing

ECONOMIC FEASIBILITY

Projections for profit and loss associated with 3rd party HACCP audit compliance can be estimated by adapting CISA's **templates for salad greens enterprise cash flows** to specific farm conditions (*See Cash Flow Example – HACCP Salad Greens*).

OPERATIONAL FEASIBILITY & RESOURCES

CISA developed several resources related to on-farm salad greens packing to help answer feasibility questions for farmers exploring more formal food safety and quality control protocols. These materials were drafted with the assistance of regional experts, including farmers, food processing specialists, auditors and for-profit consultants and food testing firms.

- *GMPs* – CISA developed a Quality Assurance outline with Brian Norder of the Vermont Food Venture Center that illustrates GMP requirements and example SSOPs.
- *Equipment and Facility Recommendations*
Tipsheets explore equipment and facility options for packing greens. We found that there are limited equipment choices for small-medium scale producers, and compliance with GMPs may require substantial investments to bring packing sheds into line with the GMP commercial kitchen standards designed for food processing activities.
- *Case Studies for Salad Greens Packing: On-Farm vs. Off-Farm*
This document walks through the possibility of using an established commercial kitchen, like the Franklin County CDC's Food Processing Center, for the packing of greens to meet HACCP prerequisites (namely GMPs) and auditor requirements. Our assessment weighs the pros and cons of on-farm and off-farm packing. While working with a food processing incubator may be an efficient partnership for some producers, salad greens harvested in warm temperatures

⁹ The above costs are specifically related to implementing HACCP principles. If your operation is also growing in scale to accommodate new markets, you may have additional increased costs such as higher energy costs (e.g., refrigeration, transportation) and insurance.

have the distinction of needing immediate on-farm hydrocooling for quality assurance – therefore making it inefficient to rinse and pack at two separate locations.

- *Auditor Consulting Services Site Visit - Lessons Learned*
We used Silliker Inc.'s consulting services to help us develop a HACCP plan for ready-to-eat salad greens, and clarify the requirements of a HACCP Verification Audit for packing activities. Some of the specific lessons from that visit are outlined in this document.

RECOMMENDATIONS & SUCCESS FACTORS FOR FARMERS

Whether preparing to meet third-party audited HACCP for a particular buyer, or upgrading systems in anticipation of regulatory requirements, here are some next steps for farmers to consider:

- *Get informed*
It is a good idea for growers to understand the basics of HACCP, and keep up-to-date on the options proposed by regional organizations. This will allow growers to monitor changes in industry standards, respond in an informed manner, access available tools, and propose practical alternatives. CISA has materials and templates that growers can use to develop their own draft plans. Contact us for more information.
- *Start gradually*
Identify lowest hanging fruit for modest and gradual adjustments to meet industry standards, making changes that improve the business on multiple fronts.
- *Find what makes business sense*
Calculate the costs and benefits and find the right market. Each farmer defines their own target market for themselves, matching volumes, price point, and other standards and business culture with their own business plan. As growers assess potential markets, they will need to ensure a business fit with the buyer's price point and volume commitments before pursuing on-farm improvements to comply with vendor requirements.
- *Focus on prerequisites*
As growers pursue HACCP planning and audits, other programs that require documentation (such as GAPs or organic certification) provide useful experience and skill-building for farmers and baseline data. GAPs are a prerequisite for audited HACCP, and farmers will have more support with a Massachusetts training program and inspector in place.
- *Use HACCP tools for self-audit first*
The findings of this study suggest that buyers are looking for some assurances and documentation of due diligence, but that for most buyers interviewed, there is still flexibility for what kinds of programs growers establish for their growing and packing operations. In most cases, third party audited HACCP is not required as part of vendor agreements. Buyers are open to hearing about the quality assurance and food safety systems on the farm, preferably in line with familiar programs such as GAPs or basic tracking systems.
- *Identify good working partners with auditing firms*
Network with regional partners to understand what firms are the most reasonable to work with, and to know what to expect in terms of standards and price structures.

Appendix

- Farmer Self-Assessment
- Salad Greens Market Study
- Cash Flow Scenarios – feasibility notes
- Case Studies for Salad Greens Packing: On-farm vs. Off-farm
- Auditor Site Visit – Lessons Learned
- Equipment & Facility Recommendations for GMPs
- GMP binder - Table of Contents – contact for full template