

**Local Food Promotion Program (LFPP)
Final Performance Report**

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| Report Date Range: <i>(e.g. September 30, 20XX-September 29, 20XX)</i> | September 30, 2014 – September 30, 2015 |
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| Recipient Organization Name: | Red Tomato |
| Project Title as Stated on Grant Agreement: | Traceability and Labeling for Wholesale Markets Designed to Add Value for Growers and Consumers |
| Grant Agreement Number: <i>(e.g. 14-LFPPX-XX-XXXX)</i> | 14-LFPPX-MA-0071 |
| Year Grant was Awarded: | 2014 |
| Project City/State: | Plainville, MA |
| Total Awarded Budget: | \$20,225 |

LFPP staff may contact you to follow up for long-term success stories. Who may we contact?

Same Authorized Representative listed above (check if applicable).

Different individual: Name: _____; Email: _____; Phone: _____

- Goals/objectives of project** as outlined in the grant narrative; progress made and impact on the community.

Red Tomato designed and tested basic PTI-compliant traceability systems that enabled growers in Red Tomato's network to meet requirements of retail customers for electronic traceability from farm to shelf. The Produce Traceability Initiative (PTI) is an industry-led, supply chain-wide voluntary effort to help the produce industry maximize the effectiveness of traceability procedures. Whole chain traceability involves the use of a standardized PTI case label on each case that provides the necessary information to link it from the original packer to all handlers in the supply chain.

PTI requirements can be a barrier for growers, especially small and mid-size growers who may be using manual or basic systems for tracking and labeling. Red Tomato looked at PTI systems that would particularly include operational benefits to growers. In addition, we explored a complementary marketing component in order to add value for consumers, growers and retail marketers by linking traceability systems to farm stories and other branding and marketing initiatives.

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i. Objective 1: Plan and test traceability and labeling system that meets the basic requirements of a major retail produce customer.

a. Progress Made: We reviewed the labeling and traceability requirements of two major Red Tomato retail accounts and outlined steps for compliance by growers selling to these accounts. Retailer A is a national chain with newly implemented Produce Traceability Initiative (PTI) requirements at the case level. Retailer B is also a national chain with specific labeling and traceability requirements at the case level (Stock Keeping Unit barcode and lot number) and retail package level (UPC barcode and lot number). The focus of Objective 1 was compliance with Retailer A's new traceability requirements. We identified 10 core growers in the Red Tomato network who would participate in the pilot, and reviewed current labeling technologies and practices with each.

The test group for this phase was reduced from 10 growers to 4. In order to fully test actual labeling, we delayed our pilot to align with the launch date of Retailer A new traceability requirements. As a result, several growers who would have participated had finished shipping their crops for the year. In October, November and December 2014, four growers implemented basic PTI labeling processes to meet Retailer A's needs. Growers put a specific PTI label on each case, that included a GTIN and a lot number linked to growers' existing traceability systems. Retailer A provided a free software option for printing the required PTI-compliant labels on standard printers as part of the rollout of their traceability requirements. The additional 6 growers participated in the subsequent phase of this project and were prepared to comply with the new labeling requirements for the 2015 growing season using the system we designed and tested.

PTI uses GS1 standards as the common language to communicate product information that can be scanned and tracked by companies in the supply chain. Red Tomato did an assessment of what would be required to manage GS1 data requirements for growers. Red Tomato already had an account with GS1 which allowed for up to 100 GTINs, a 14-digit number that consists of the unique Company Prefix followed by the commodity and pack style number assigned by Red Tomato. Two growers sell to Retailer A directly and manage their own orders; in this case, it was determined that it would be more appropriate for these growers to use their own Company Prefix and GTINs. Based on this pilot we determined that the increased use of GTINs for traceability of all products under PTI required Red Tomato to upgrade our GS1 subscription to 1000 unique GTINs, at additional cost and annual fee.

During the test period, we checked in regularly with growers via phone to ensure compliance and understand how Retailer A's new requirements affected their current practices and capabilities.

b. Impact on Community:

Growers participating in the test were fully able to comply with the new labeling requirements. Several already had capacity to generate labels of some kind for other customers. They collectively shipped 13 orders, totaling \$66,193, to Retailer A between October 15 and December 31, 2014. Two growers used the free software provided by Retailer A and the other 2 were able to use existing equipment to produce labels in the correct format. Retailer A reported no issues with orders shipped from participating growers during the test period.

Growers in the test group reported that printing PTI-compliant labels required an initial time investment, but once a system was established, it added only a small amount of labor and cost. One grower using the free software, Avery labels and a desktop printer, estimated the extra cost at 10 to 15 cents per case including labor and materials. Three growers already saw some benefits from the uniformity of the PTI compliant label and the potential for a streamlined system. All growers expressed interest in saving time and labor by integrating the label printing with their accounting software, inventory management and/or food safety reporting systems. All growers already had to print special labels to service other customers, and one grower was able to use the PTI labels created for this program to service a new customer that had similar requirements to Retailer A.

ii. Goal/Objective 2: Enhanced labeling, order-processing and inventory management systems to add efficiency and value on-farm

a. Progress Made: Based on PTI capacity results from Objective One, we designed a PTI-readiness plan that could address practical systems for a range of farm types and sizes, and would improve on-farm record keeping, order processing and inventory management systems.

We conducted a survey in February 2015 of Red Tomato growers to provide information about current record keeping, order processing, inventory management, labeling processes, marketing capacity and other technology-dependent activities at the farm level. The survey group included 3 farms that participated in Objective One, 4 additional farms with experience and capacity to create computer generated labels and 2 farms that did not have the expertise to create printed labels.

The survey was developed in collaboration with Vermont Food Systems, who were engaged in a similar project, and formatted in Survey Monkey so both organizations could share results. Red Tomato then identified the top operational efficiency issues and opportunities for improvement. Growers reported relying on a paper-based, manual system, which involves labeling bins from the field, linking the field data to lot numbers that goes on packed cases, and linking this pack code to invoices. Growers can then trace their produce back to the date, field and crew that harvested the product. In general, the farms with these traceability systems in place reported that current record keeping practices are inefficient, require extra labor and are prone to human errors. In addition, growers reported difficulties around linking lot numbers to their order processing.

For harvest, the majority of growers use a field notebook or other hand-written system, alone or in conjunction with a computer spreadsheet. Half reported using a smartphone, tablet or laptop computer in the packinghouse, to run software for printing labels, to access accounting software, or for order management. Farms reported a variety of manual and computer-generated or pre-printed labels, on some or all of their produce. The majority apply labels by hand.

For inventory management, growers rely on a manual system and do not link their inventory systems to harvest, pack and sales data. Most growers reported having smartphones and computers with good connectivity and expressed an interest in a user-friendly integrated computer-or smartphone-based system to use for harvest, packing and order management in order to minimize errors provide full-traceability for customers and benefit from time and cost savings.

To complete this phase of the project we identified and reviewed technology solutions in collaboration with Vermont Food Systems. We developed recommendations for three tiers, suitable to farms with varied needs and capacities. Each of the traceability system tiers addresses the following elements:

- Harvest bin labeling and data capture
- Inventory management
- Accounting

b. Impact on Community: A three-tiered approach to implementing PTI labeling and traceability technology has been developed, and includes criteria for use by individual farms to determine the best approach and create a system customized to their needs and operation. The approach and criteria are part of the Implementation Plan created as a result of this project, and are available from Red Tomato.

iii. Goal/Objective 3: Marketing and farm brand identity enabled by traceability technology

a. Progress Made: Red Tomato identified and reviewed existing farm identification marketing tools and programs currently in use in the food industry, focused on the benefits and costs of each program to its target network of farmers and its compatibility with electronic traceability systems. We looked at branded, farm-identified packaging; QR-coded product labels which link to multimedia farm profiles; digitally interactive POS materials; real-time harvest availability lists and social media campaigns. We found many marketing programs using farm-level traceability, but none involving fresh produce.

We conducted in-depth phone interviews with two that were compatible with Red Tomato's goals and supply chain activities. One seafood company assigns an ID code to product upon receiving from fishermen which is converted into a QR code on each package of fish, and linked to unique webpages containing location of catch, boat, fisherman and species. Another company, marketing packaged dry goods, labels their consumer packaging with a unique alpha-numeric code that can be entered into a search feature on their website to learn more about the source of ingredients.

Red Tomato also identified and cataloged current marketing resources at farms in the Red Tomato network who are considering or who have adopted PTI-compliant electronic traceability systems. Current marketing resources include farmer profiles, a collection of videos and photos, farm identified labels and packaging, customizable Point of Sale cards and posters, websites and social media platforms.

For the pilot, we tested a basic approach, providing QR codes for each growers PTI case labels, linked to farm profiles on the Red Tomato website. We were able to add a QR code and print the labels successfully and determined there would be space for a readable QR code on a standard size PTI label.

b. Impact on Community: Implementation of a full-scale QR code marketing system would require some additional expertise and printing equipment on most farms. Red Tomato would need additional capacity to assist growers, and to develop and provide a more robust web based platform to link to QR codes.

iv. Objective 4: Implementation plan for PTI-compliant traceability

a. Progress Made: The plan developed outlines a three-tiered approach to implementing PTI labeling and traceability technology, for use by individual farms to determine the best approach and create a system customized to their needs and operation; and includes criteria to help a grower determine the steps he or she would need to take for implementation. This approach to PTI compliance allows for growers to use their own system as long as it is augmented with a GS1 case label that includes a GTIN and lot number that traces product back to the source. Basic Steps include:

Step 1: Document existing processes – Create a flowchart with a written description of the process steps that enables you to consider how an improved traceability system would fit into your existing processes.

Step 2: Identify potential gaps – Look for gaps in traceability or areas that need improvement and whether improvements can be made by leveraging current systems. Identify what information relies on a paper-trail and what information is electronically recorded. Determine availability and accessibility of the following data: item description, field/block, harvest date, pack date, customer name, ship date and ship quantities.

Step 3: Food Safety Audit--Because traceability is closely linked to food safety processes on the farm and in the supply chain, we recommend a Food Safety Audit, conducted by a consultant or agency that specializes in such, as part of the preparation for implementation at any Tier level. This will help to identify and verify gaps in data and processes as well as provide an opportunity to integrate food safety processes and traceability processes as the farm is moving forward. We expect there will be additional efficiencies and benefits to such integration, which, along with the marketing opportunities, will help to offset some of the costs to the farm of implementing these requirements.

Step 4: Research software and hardware options and compare – Conduct a thorough assessment of traceability software solutions as well as complementary hardware options available on the market and compare their costs and functionality. Conduct a cost-benefit analysis based on basic traceability needs and potential for internal system improvements. Collect quotes from various vendors and create a simple budget based on the solution(s) that would be the best fit and available resources. See Appendix C for a software research guide and a survey of some existing solutions.

Step 5: Identify additional steps and changes that would lead to operational benefits – Review systems described in Tiers 2 and 3 and determine the level of electronic record-keeping and integration that is most suitable for your operation. Consider operational processes for different commodities and the number of pack styles and volumes. Determine which improvements would lead to significant time and cost savings, and whether a stand-alone traceability software system or some level of integration (with accounting and inventory management) be a worthwhile investment.

Step 6: Prepare for implementation – Purchase equipment, if determined to be necessary. Create training materials for your new traceability processes. Ensure that someone is responsible for worker training and successful adoption before you fully rollout the new system.

To request a copy of the complete project report and Planning Guide, contact: info@redtomato.org

For questions and additional information related to traceability work with growers at Red Tomato, contact: Susan Futrell, Director of Marketing: sfutrell@redtomato.org

b. Impact on Community: We were able to assist all Red Tomato growers selling to retailers that require PTI-compliant labels to provide proper labeling during the 2015 season. We now have information and a process for assisting additional growers in adopting or enhancing their traceability systems in the future. Because this is a planning grant, full implementation has not yet begun. However, we will continue to work directly with growers in the Red Tomato network, and to share our results as a resource and planning tool for other farm networks, food hubs and collaborators.

2. **Quantify the overall impact of the project** on the intended beneficiaries, if applicable, from the baseline date (the start of the award performance period, September 30, 2014). Include further explanation if necessary.

Because this project was a one-year planning grant, and did not cover implementation beyond the pilot testing phase, there is no broad impact to report. However, there was impact specific to the pilot and planning process, noted under each objective above.

3. **Did you expand** your customer base by reaching new populations such as new ethnic groups, additional low income/low access populations, new businesses, etc.? If so, how?

Because this project was a planning grant, and did not cover implementation beyond testing, there is no meaningful new business or customer base to report at this stage.

4. **Discuss your community partnerships.**

- i. Who are your community partners?

Our primary partners in the Planning phase were participating Growers, and Retailers who are purchasing product from those growers and require PTI compliant labels. In addition, through the network of the Northeast Sustainable Agriculture Working Group (NESAWG) we met and collaborated with Vermont Food Systems, who were conducting a related project for VT growers. We were able to share information, work together to develop a comprehensive survey, and collaborate on research.

- i. How have they contributed to the results you've already achieved?

The participating Growers and Retailer A were actively involved in the test phase of Objectives 1-3 and helped us achieve successful results. VT Food Systems shared research on tech solutions, and we exchanged our research with them, enabling both organizations to compile a more thorough review than expected. We worked together to design and develop the grower survey, and to share and compare results.

- ii. How will they contribute to future results?

Growers and retailers will be important participants in any implementation of new PTI systems at individual farms in the Red Tomato network. Red Tomato will continue to share our information, experience and recommendations through larger networks such as NESAWG and National Good Food Network as well as in future collaborations with other food hubs in our region.

5. **Are you using contractors** to conduct the work? If so, how did their work contribute to the results of the LFPP project?

One Red Tomato project staff member left the organization midway through the project, but was able to continue and complete her portion of the work on a contract basis. Her experience with the

organization, growers and customers, and her involvement in the development and early phase of the project contributed significantly to the completed plan and report, and allowed us to fulfill the project requirements and timeline.

6. Have you publicized any results yet?*

- i. If yes, how did you publicize the results?
- ii. To whom did you publicize the results?
- iii. How many stakeholders (i.e. people, entities) did you reach?

Because this project was a one-year planning grant, and did not cover implementation beyond testing for the pilot, we have not publicized any results beyond sharing them with participating growers. We plan to post the completed report on our website and make our work available to others, and will announce the completion of the project in our year-end newsletter.

7. Have you collected any feedback from your community and additional stakeholders about your work?

- i. If so, how did you collect the information?
- ii. What feedback was relayed (specific comments)?

Feedback was collected from both farm and retail participants at various stages in the development of the plan, through on-line and telephone surveys and in person during on-farm visits. Specific feedback is summarized above under each objective.

8. Budget Summary:

- i. As part of the LFPP closeout procedures, you are required to submit the SF-425 (Final Federal Financial Report). Check here if you have completed the SF-425 and are submitting it with this report: **X**
- ii. Did the project generate any income?
No Income was generated by this project

9. Lessons Learned:

- i. Summarize any lessons learned. They should draw on positive experiences (e.g. good ideas that improved project efficiency or saved money) and negative experiences (e.g. what did not go well and what needs to be changed).
- ii. If goals or outcome measures were not achieved, identify and share the lessons learned to help others expedite problem-solving:
- iii. Describe any lessons learned in the administration of the project that might be helpful for others who would want to implement a similar project:

The project allowed Red Tomato to more fully research emerging PTI requirements and to better understand the capacity and needs of our grower network to meet those requirements. Collaborating with another organization and using Survey Monkey to compile more detailed survey data allowed us to do more in-depth review than anticipated. The results confirmed that participating growers are interested in integrating traceability more fully into their operations, and want to be proactive in finding systems to meet the requirements.

One important result of the work was the understanding that requirements for PTI labels and traceability systems are continuing to evolve, and still vary considerably among retailers, distributors and others in the supply chain. Solutions at the farm level will need to be customized to meet individual needs and capacity, and there is not going to be one solution or system that fits all.

The research on PTI systems also helped to confirm that as the standard GS1 registration platform is used for increasing and expanding functions within produce supply chains, a basic registration for 100 numbers, which has met Red Tomato's needs for the past ten years, is no longer adequate, and the cost of maintaining basic registrations will increase significantly.

We also determined that Food Safety practices and systems need to be incorporated into any traceability labeling system to be fully effective, and we have identified additional work on food safety capacity as an important aspect of future work.

Marketing applications with very basic capabilities can be readily added to PTI-compliant labeling, but for those tools to become fully integrated and customized for retailer and institutional marketing, significant development of a back-end to support the farm identity links will be needed.

There is good potential for systems that meet retail needs to also bring benefits to growers in terms of management and marketing, but selection and implementation of systems with long-term benefits requires more time and research than quick approaches to meet immediate needs. Time, more than technical capability, or even cost, is still a significant obstacle to integrating long term solutions on-farm.

10. Future Work:

- i. How will you continue the work of this project beyond the performance period? In other words, how will you parlay the results of your project's work to benefit future community goals and initiatives? Include information about community impact and outreach, anticipated increases in markets and/or sales, estimated number of jobs retained/created, and any other information you'd like to share about the future of your project.

We will make the results of this project available to all growers in our network and will incorporate further work to support growers in implementing PTI labeling as part of our 2016 planning and budgeting and our Annual Growers meeting in March, 2016. The scope of future implementation will depend in part on the interest and needs among growers, in part on the needs of retailers that we supply, and in part on funding and Red Tomato capacity.

- ii. Do you have any recommendations for future activities and, if applicable, an outline of next steps or additional research that might advance the project goals?

Additional Steps: An additional step beyond the scope of this planning grant would be to assess what would be needed to coordinate implementation of PTI systems in a collaborative and cost-effective way, perhaps by organizing groups of growers with similar needs and facilitating resource sharing at a group level. For example, coordinating the services of a Food Safety Auditor as outlined in Step 3 could benefit a group of growers and might also identify common equipment and systems needs. Because the timeline and needs of each farm can vary significantly, it would take further research to determine whether there is value in this approach, or whether it is most effective to pursue implementation on a more customized, farm by farm basis.