



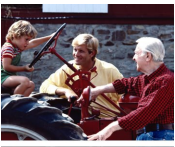
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What is Practical Produce Safety?

Maximizing Quality, Profitability and Safety

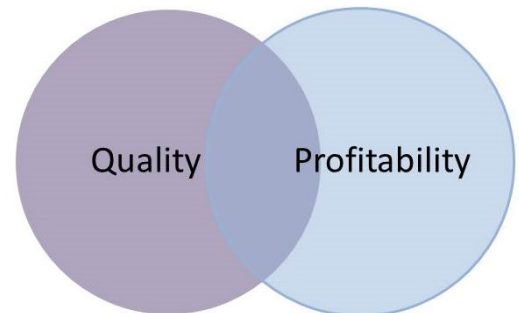
Practical Produce Safety (PPS) is a cost-effective strategy for growers to implement food safety practices that **minimize risk** while **maximizing produce quality and farm profitability**.

PPS was developed in 2010 with three Vermont produce farmers. They were concerned that looming produce safety regulations and practices were designed for large farms, and would be onerous and costly for small diversified farms to implement. None of these farmers were required to have third-party food safety audits such as USDA GAPs (Good Agricultural Practices), they simply wanted to learn about produce safety practices, write a produce safety plan, and implement effective practices on their farms.

PPS was created to help farmers implement produce safety practices in a way that fits their scale and available resources. PPS allows farmers to **evaluate** their farming practices through the lens of self-audit, closely based on the USDA GAPs checklist, **write** a produce safety plan, and then **implement** practices that provide cost-effective risk reduction.

What is practical?

Small diversified produce farms are concerned primarily with growing and selling high-quality produce. Yet they also must be profitable to thrive. Successful farms are those that find the sweet overlap between produce quality and profitability, as shown in to the right.



Now add produce safety to the mix. The last thing a farmer wants is to have their produce make someone sick. Thus selling “safe” produce is also a top priority. Farmers realized that although nothing is **guaranteed** safe, there are practices they can adopt to **minimize risk**. **Practical** produce safety practices are the ones that overlap broadly with practices that also improve farm profitability and produce quality and will give you the most bang for the buck. Most of them are easily implemented and affordable such as: hand washing, cleaning routines, and water testing, but they can also significantly reduce food safety risks.



Good News—PPS Works!

In working with Vermont farmers over the last few years, we have found that there **are** many produce safety practices that **make a lot of sense** for small farms to implement. These are the practices that overlap the quality / profitability sweet spot described above. They improve safety, are affordable AND/OR can increase the quality and durability of their produce.

These PPS practices produce multiple benefits or “win-wins”. They can reduce risk, AND, for example, decrease the spread of plant disease that reduce shelf life. Or they can improve on-farm communication and organization that increase farm crew morale and productivity. These win-wins are time-tested by professional farmers and, in general, are easy and affordable to implement.

It is our hope that PPS can have a positive impact on your farm. In addition, as many start to implement and document successful PPS practices, we will build a body of knowledge and expertise that can help tailor effective food safety policies for small diversified farms throughout the country.

Below are the field-tested practices that rise to the top. These win-wins are a companion to the Produce Safety Fact Sheets and the PPS template that follow the introduction. The fact sheets present a more complete picture of food safety practices and provide a general reference. The template, with its organized questions, will guide you through writing a produce safety plan for your farm.

What practices rise to the top?

First of all, make a plan! In the slow season, take a day to log current practices and write a produce safety plan. The simple act of reviewing practices with improvement in mind, getting it down on paper, and revising your plan annually can, for relatively little time and money, significantly increase the safety, productivity and profitability your operation. This manual includes a template with prompts that you can use as a basis for your produce safety plan. You can also download a word version from the Center for Sustainable Agriculture’s Produce Safety Resource webpage: <http://www.uvm.edu/~susagctr/?Page=whatwedo/producesafety/gapresources.html> Your plan can be shared with buyers, used for employee training and as a base for creating standard operating procedures on your farm.

Land History: Know your land like the back of your hand

- To maximize production and produce quality, all farmers should get to know their land and soil.
- Making maps, and closely observing natural patterns cost little or nothing and provides multiple benefits, including discovering potential contamination, effective crop timing, irrigation, rotation and control of wildlife damage.

Fertility: Handle manure properly for multiple benefits

- If you make your own compost, make sure it heats to the appropriate temperatures and is turned regularly so that it is heated throughout. This not only ensures that you are reducing pathogens that can make people sick, but also that you are destroying weed seeds and plant pathogens. This will lead to less pests and diseases for your crops and less work for you in the long run.

Field Contamination

- **Wild animals: Observe Closely.** It makes sense to make time to closely observe, map, and log wild animal signs and destruction patterns because, understanding these patterns over time can greatly increase the success of your prevention methods, increasing safety and farm profitability.
- **Domestic animals: Rotational Grazing is practical.** Rotating human food crops, grazing animals, and cover crops is a time tested horticultural practice that builds healthy soil, plants and animals. Following grazing animals with a rotation of cover crops (green manure) before planting human food crops ensures full retention of nutrients in the animal manure, builds soil, and prevents crop contamination. (The exception is pigs, for which you need at least a 5 year rotation due to roundworms, whose eggs can last for years in the soil).
- Following field crops with chickens can give additional benefits of clean up, pest reduction, egg sales, fertility. Provide at least 4 months/120 days between presence of chickens and when you would begin to harvest crops.

Harvesting—stay clean, stay cool!

- Wash hands before returning to work or as needed. Hand washing can reduce the risk of both human pathogens and cross-contamination of plant pathogens between greenhouses or fields.
- Harvest in the cooler morning and remove field heat as soon as possible from perishable produce. This will increase the quality and durability of produce and reduce the growth rate of pathogens.
- Use mulches ,and when harvesting, keep non-root crops as clean as possible after they are picked to reduce contamination and decrease cleaning time and frequency of wash water changes.
- Keep bins clean. Regularly cleaned and air-dried harvest and storage bins can reduce both contamination and the spread of plant diseases and increase customer confidence.
- Keep harvest and storage bins in good repair and discard un-repairable bins. This can prevent cutting or nicking produce which will save money, prolong shelf life, and reduce risk of contamination.

Washing and Packing—Get efficient and organized

- There is big payback for efficient flow of product from field to cooler! It is worth it to invest some time thinking how you can improve the flow and efficiency of the rinse and pack line. An efficient rinse and pack line can significantly increase farm profitability, save time in cleaning and decrease cross-contamination between dirtier and cleaner parts of your line, and protect your back and arms!
- Create regular cleaning routines. A bit of time spent cleaning and organizing at the end of each day / week or month improves food safety and decreases time wasted looking for and replacing lost items. Organization prompted by cleaning and maintenance routines can improve work flow and increase overall crew productivity and morale.
- See if there is someone on your crew who has a particular affinity for organization, and give them the responsibility of creating organizational systems, labeling and making sure everything has a place.

- Immediately prior to use, sanitize harvest knives kept in one clean central location. This routine costs next to nothing, reduces cross-field contamination of plant and human pathogens and helps keep track of expensive knives.
- Laminate and post cleaning routine signs in the rinse and pack shed. They will help new employees get up to speed, set clear standards for all, create a culture of neatness and food safety.

Storing—Excellent storage leads to excellent produce

- Cool quickly but don't bust your compressor! When possible pre-cool warm produce (with water or ice) before placing it in the cooler.
- For outstanding quality and food safety for most leafy greens: triple rinse and store in a cold (40° F) and moist cooler and sell within 72 hours. Customers will be impressed by the quality and the shelf-life of your properly rinsed and stored produce!
- Label containers in storage with harvest and/or pack date as part of a first-in, first-out strategy. Color coding labels can serve as a logistics guide (e.g., blue labels for CSA, red for wholesale, etc.).
- Periodic cooler cleaning and sanitizing will decrease risk of plant and human pathogens, increasing produce quality, storage life and safety.

Tracking Produce—Know what, when, and where

- Keep paper or computer copies of harvest logs/pick sheets. This allows for accurate recall that can help with traceability if necessary, as well as in responding to buyers questions about specific lots.
- Put a farm label on wholesale units, that includes your farm name and address, contents, and harvest or pack date. This important tracking tool helps build buyer confidence which can improve farm sales.

Health and Hygiene—Good practice and clear communication with employees

- Create a fair and clear sick policy. Good worker health and morale decreases the potential for contamination and is essential to for keeping happy and efficient workers. "Sick day jobs" like mowing or weeding allow ill employees to work without infecting others or contaminating produce, and will encourage workers to be honest. Build in paid sick days that will increase team morale and decrease risk of contamination. One paid sick day per 20 workdays amounts to a 5% pay increase, if used at all. This small investment can pay back in increased productivity resulting from increased worker morale.
- Make up multiple simple first aid kits for minor injuries and put them in known places including all farm vehicles and the pack shed. Save time looking for bandages and reduce contamination if workers are in the field.
- Rotate the "King or Queen of Cleaning" Job—Create a rotating responsibility for cleaning schedules of hand washing stations, toilets, trucks, machinery, etc. This can help workers invest in hygiene and food safety, while creating more middle management jobs that can help build a proud, efficient team.
- Where is the bathroom? Provide an easily accessible toilet and hand washing station even when workers are in distant fields, and a clear expectation that workers can and should use them. This is an important food safety requirement and a humane gesture. Taking care of peoples' basic needs can improve morale and productivity.

Who is the Practical Produce Safety Manual for?

UVM Extension's Practical Produce Safety Curriculum and these materials were **designed specifically for small produce farms that primarily direct market** their produce through CSA's, farm stands, farmers markets, or direct to restaurants, grocery coops, schools, hospitals or other local buyers. The principles and practices are based on the USDA GAPs audit (2011), information from National GAPs program <http://www.gaps.cornell.edu/educationalmaterials.html> and various Extension GAPs programs from around the country. As such, it can lay the foundation for a farm to become familiar with Good Agricultural Practices and the types of activities that are included in a GAPs Audit.

However, because GAPs audits have very specific formats, the Practical Produce Safety template is not appropriate for farmers who are thinking about seeking GAPs certification within the next year or two. **If over 50% of your sales are wholesale**, or you are thinking of expanding sales to any regional or national distributors, or chain supermarkets, you should **ask your buyers what their requirements are for produce safety**. For example, some buyers are still accepting the standard USDA GAPs, while other buyers are requiring the Harmonized GAPs, and still other buyers have their own GAPs audits.

The manual is also not appropriate for farms that will be covered by the Food Safety Modernization Act (FSMA). Produce safety is a rapidly changing area. These materials were developed while FSMA was still in draft form, so farms that are covered by FSMA may have additional specifications for some of the practices that are not included here. Examples might include specific requirements for manure handling, testing of irrigation water or monitoring of rinse/processing water. Contact UVM Extension's Produce Safety Coordinator to find out if your farm is covered by FSMA and what specific standards or regulations you will need to follow.

How to use the Practical Produce Safety Manual and Template

On the next few pages you will see a template for creating a produce safety plan for your farm, and an example of how one farmer used the template to create an employee training manual. Both of these documents are available in word form for download from Center for Sustainable Agriculture's Produce Safety website, <http://www.uvm.edu/~susagctr/?Page=whatwedo/producesafety/gapresources.html> under Practical **Produce Safety Plan Template** and **Sample Employee Training Manual**.

To transfer the electronic word version to your own computer, so that you can modify the template or employee manual, go to the website above, locate the Produce Safety Plan Template or Sample Employee Training Manual, download it, rename it, and save it to your computer.

The far left column of the Produce Safety Plan template has Topics or categories that should be covered in any produce safety plan. The "Guiding Questions" column has a list of questions or prompts to help you assess potential produce safety risks on your farm. Use the middle section to describe your current Practices. Imagine leafy greens or another perishable crop and simply log what you do through the lens of the prompts. Write to an audience--it might be an institutional buyer, a customer, or your farm staff. Bullets and phrases are fine. It shouldn't take you much more than one hour for the first draft.

Do not be intimidated by all of the questions! Focus on *what works and makes sense for your operation*. Use the column on the far right “Actions to Take” to make notes on changes you would like to make in the short and long term.

The rest of the manual is organized to follow the Topic areas in the template. You can refer to each section for more detailed information on specific best practices for reducing risks and improving food safety in each topic area, such as irrigation or soil fertility management, or rinsing produce. All of the individual sheets are available for download from the Center’s website and can be used as handouts for employee training.

This template is just one way to design or format a plan. You do not have to follow this format—your food safety plan should reflect *your* farm operations, *your* business needs, *your* vision and values. For example, you may want to add standard operating procedures for horticultural practices such as pest control, or for quality control such as instructions on bunching sizes in your plan. The template is just a suggestion for starting points—make your food safety plan *yours!*

Your plan should be a living document. As you try out practices, get feedback from employees, figure out what works, and what doesn’t and how it can be improved, keep notes. Every other winter or so, sit down with your plan and update it to include the improvements. Keep checking the Center for Sustainable Agriculture’s Produce Safety website as the curriculum is constantly evolving and we frequently add more information and resources to the site.

Good luck to you in all of your farming ventures!

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