

# GAP Program Rollout, Part 2: Land Use Evaluation and Water Testing

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In this issue, Good Agricultural Practices (GAP) for citrus growers under the FDA's Food Safety Modernization Act (FSMA) will address key aspects of Land Use/Field Risk Assessment and Water Quality/Testing for your Food Safety Plan. Your first steps are to identify and begin correcting all existing and potential risks after a thorough evaluation of your property, facility, and operation. To help accomplish this and begin documenting these identified risks and corrective measures, go to California Citrus Mutual's website and download its Grower Food Safety Plan sample manual template at <http://www.cacitrusmutual.com/wp-content/uploads/2015/12/Citrus-Grower-Food-Safety-Plan-Final-05-01-2012.docx>. You can then customize this document to your farming operation so that it becomes your official GAP manual. Working through all the GAP standards topics and forms should result in a near-complete Food Safety Plan going into the 2017 season that is customized to your farm and identifies your specific policies, preventative controls, maintenance and inspection logs, and standard operating procedures (SOP) as required by FSMA. Applicable sections in the sample manual, referred to by the numbered SOP, are referred to below.

Land Use/Field Risk Assessment: (SOP#1 on Adjacent and Previous Land Use and the Field Risk Assessment form on page 22) Include in your manual field maps (including block numbers), which are useful for traceability purposes and to identify production areas. These maps should also include chemical and equipment storage areas as well as personal use areas (residential, garden, septic). Topography data help identify food safety risks from adjacent lands (such as livestock production and animal waste issues, industrial facilities, water flows, etc.). The Field Risk Assessment also identifies and documents all water sources used on the property (well, pond, canal, reservoir, etc.) and any exposure risks should water come into direct contact with fruit or fruit-contacted surfaces. In addition, your Field Risk Assessment must detail the production area's previous land use history for other possible sources of contamination and identifies the preventative measures and corrective actions needed to minimize health hazards. All animals, both wild and domestic must also be restricted from production areas (see SOP#7 on Animal Activity). Evidence of any animal intrusion, however small, should be physically identified, and a "no-harvest" buffer zone established around the area. Before harvest, you will also need to conduct a Pre-Harvest Inspection (SOP#8, using the form on page 38).

Water Quality/Testing: (SOP#2 on Ag Water Usage and SOP#3 on Water Sampling) Prepare a description of the water distribution systems in use, including maps of permanent fixtures, and follow the water distribution system (including holding systems, reservoirs, water capture for reuse, etc.). Assess the system's risk factors and vulnerability from animals, adjacent land activities or stormwater runoff; plan and document preventative measures and corrective actions such as berms, ditches and fencing if contamination occurs. Document every on-site inspection conducted on that part of the water system that is under the grower's control.

FDA's Final Rule on Produce Safety for testing agricultural water (<http://www.fda.gov/downloads/Food/GuidanceRegulation/FSMA/UCM472887.pdf>) establishes two sets of criteria for microbial water quality based on the presence of generic *E. coli*. No detectable generic *E. coli* is allowed for ag water that could be transferred to produce through direct or indirect contact. For ag water directly applied to growing produce, numerical criteria is applied based on two values: the geometric mean (GM), and the statistical threshold (STV) of CFU of generic *E. coli* in 100 mL of water, which must be 126 or less in GM and 410 or less in STV. The number and intervals of water testing vary based on the water source, distribution system, and contamination risks on the property, so growers should work with an accredited drinking water laboratory that is ISO certified or holds an ELAP (Environment Laboratory Accreditation Program) certification. An Internet search on "drinking water laboratories" will provide a detailed list to choose from. Depending on the testing requirements for your situation, a minimum of 4 and as many as 20 samples at various intervals over a year or more could be required.