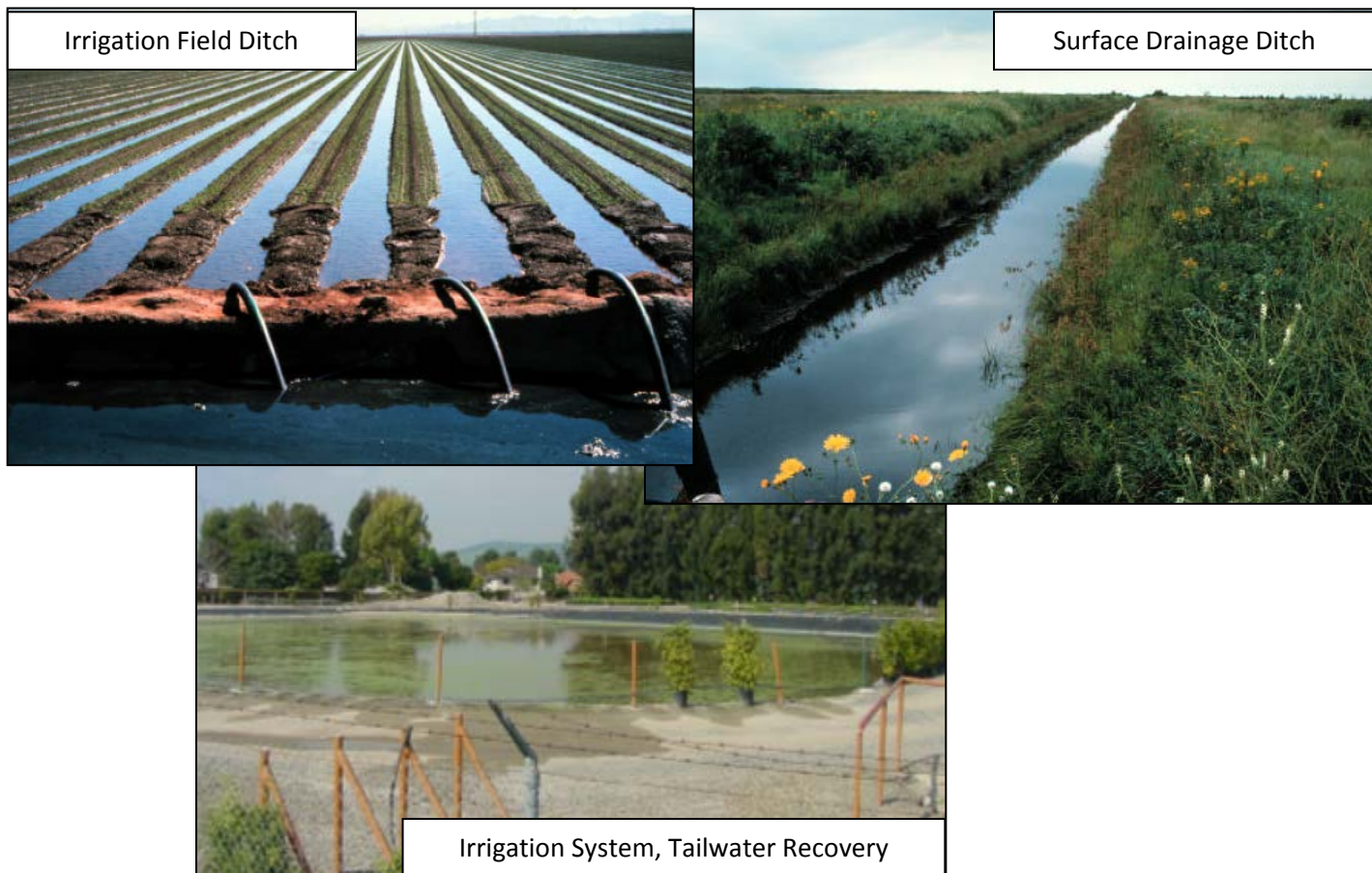


## BALANCING FOOD SAFETY AND SUSTAINABILITY

### Opportunities for Co-management – Irrigation Ditches and Tailwater Systems

*This is one of a series of resource sheets for **food safety auditors** that describe conservation practices commonly used in agriculture's production environment.*



## Images of Irrigation Field Ditches<sup>1</sup>, Tailwater Recovery System<sup>2</sup>, and Surface Drainage Ditches<sup>3</sup> (Field Ditch or Main or Lateral) in production fields

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<sup>1</sup> This practice is currently listed as [Irrigation Field Ditch #388](#) by the USDA Natural Resources Conservation Service. The NRCS National Practice Standards are updated regularly. Some states may include additional guidance; consult your local NRCS field office.

<sup>2</sup> This practice is currently listed as [Irrigation System Tailwater Recovery #447](#) by the USDA Natural Resources Conservation Service. The NRCS National Practice Standards are updated regularly. Some states may include additional guidance; consult your local NRCS field office.

<sup>3</sup> This practice is currently listed as [Surface Drainage Ditch - Field Ditch #607](#) and [Surface Drainage Ditch - Main or Lateral #608](#) by the USDA Natural Resources Conservation Service. The NRCS National Practice Standards are updated regularly. Some states may include additional guidance; consult your local NRCS field office.

## This information can help you to

Recognize Irrigation Field Ditch, Surface Drainage Ditch and Tailwater Recovery systems in the agricultural environment.

Understand the purposes irrigation ditches and tailwater systems serve in the agricultural environment.

Recognize the language growers may use to explain why these practices are important in their production environment.

Understand when audit standards may consider these practices as addressing farming impacts on the environment and biodiversity and/or as potential contributors to food safety risk.

These practices are generally used to deliver irrigation water directly to a production field, or to provide drainage of irrigation flows from the field. Although they are directly adjacent to the crop, presence of water in the ditches is intermittent and directly related to irrigation events.

**Irrigation Field Ditches** are permanent ditches constructed of earthen materials designed to convey water from the source of supply to a field or fields. Ditch bottoms and side slopes are graded to deliver water of 25 cubic feet/second or less at velocities that are non-erosive.

**Irrigation System, Tailwater Recovery** is designed to collect, store, and transport irrigation tailwater for reuse in a farm irrigation distribution system. The purpose is to conserve irrigation water supplies and protect surface water quality by collecting and reusing water. Water that flows off the low end of a field is collected in a sump and may be reused within the farming operation. The water is either directly pumped from the sump to be reused or may be pumped to an irrigation regulation reservoir for storage until needed. Filtration systems are required to prevent irrigation systems from clogging. The sump must be periodically cleared of accumulated sediment. If food safety concerns limit use of recovered water on fresh crops, water may be used for dust control on roads.

Surface Drainage – (**Field Ditch** or **Main or Lateral**) is an open drainage ditch constructed to collect excess water from a field and carry it to a suitable outlet. It is designed to a depth and grade to minimize erosion.

Advantages <sup>1</sup>	Disadvantages
<b>Characteristics shared by practices</b> <ul style="list-style-type: none"><li>• Reduces <a href="#">soil erosion</a> from ditch banks</li><li>• Minimizes irrigation water conveyance losses</li></ul>	<ul style="list-style-type: none"><li>• Less efficient than line channels in conserving water and reducing erosion</li></ul>
<b>Irrigation Tailwater Recovery System</b> <ul style="list-style-type: none"><li>• Contains sediment leaving field and allows retention on farming operation</li><li>• Conserves irrigation water</li><li>• Potentially recycles all tailwater</li><li>• May reduce deep well pumping costs</li><li>• May eliminate the need for additional conservation practices for sediment</li><li>• May be adapted to serve as a winter sediment basin</li></ul>	<ul style="list-style-type: none"><li>• More management needed</li><li>• May accumulate salts</li><li>• Land out of production</li><li>• May cause pollutants to leach to groundwater</li></ul>
<b>Surface Drainage Ditch</b> <ul style="list-style-type: none"><li>• Conveys excess runoff</li><li>• May decrease sheet and rill erosion</li></ul>	<ul style="list-style-type: none"><li>• Not suitable for large drainages or in erosive soils</li><li>• May increase channel erosion</li></ul>

<sup>1</sup>From [Farm Water Quality Management Practice Sheets](#) Irrigation Field Ditch #388, Irrigation System Tailwater Recovery #447, Surface Drainage Ditch #607 and #608

**In some audit standards** these practices may help producers to demonstrate knowledge of the impacts of farming on the environment, including water quality impairments caused by sediments. They may trigger concerns about animal activity, fecal contamination, or water of unknown quality.

## Scenarios

If there are risks of potential contaminants with recovered water used for dust control, the microbial quality of the water is monitored.

Where standing water occurs from flowing or overflowing water, buffers are established around the temporarily puddled area and in traffic areas. These areas are monitored, and signs of wildlife presence are noted.

Low profile fences are installed adjacent to ditches and monitored for potential amphibian movement to cropped areas.

## Additional Resources

[Balancing Food Safety and Sustainability: Opportunities for Co-management, 2012](#)

[Understanding Soil Erosion in Irrigated Agriculture, 2006](#)

*Additional resources on co-management of food safety and sustainability may be found at on the UC Food Safety Website under the [Pre- and Post-Harvest Produce](#) link. You can also contact Mary Bianchi, UC Cooperative Extension Emeritus Farm Advisor in San Luis Obispo County at [mlbianchi@ucanr.edu](mailto:mlbianchi@ucanr.edu).*

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