


The DO's & DON'Ts of Dairy Manure Management

Volume 2: Preventing Off-Site Discharge of Manure and Manure Pathogens

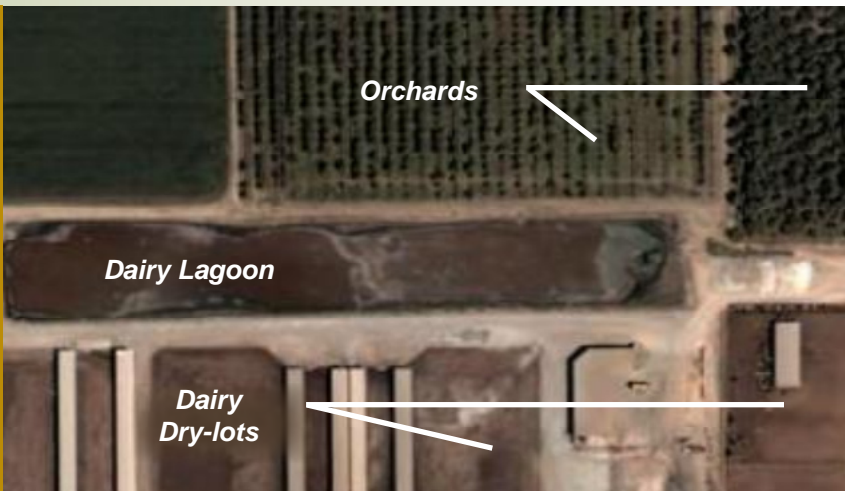
Off-site discharge of manure or manure water can damage the environment and result in fines or other regulatory actions. If manure pathogens (harmful bacteria such as *E. coli* or *Salmonella*) leave a producer's property, it can also result in contamination of human food crops and ultimately human illness.

Food crops which are consumed fresh (raw), such as fruits, vegetables, or nuts are especially susceptible to manure contamination.

Dairies have been identified as a potential source of harmful pathogens in fresh produce. This pictorial will assist dairy producers in preventing inadvertent off-site discharge of manure and manure pathogens.

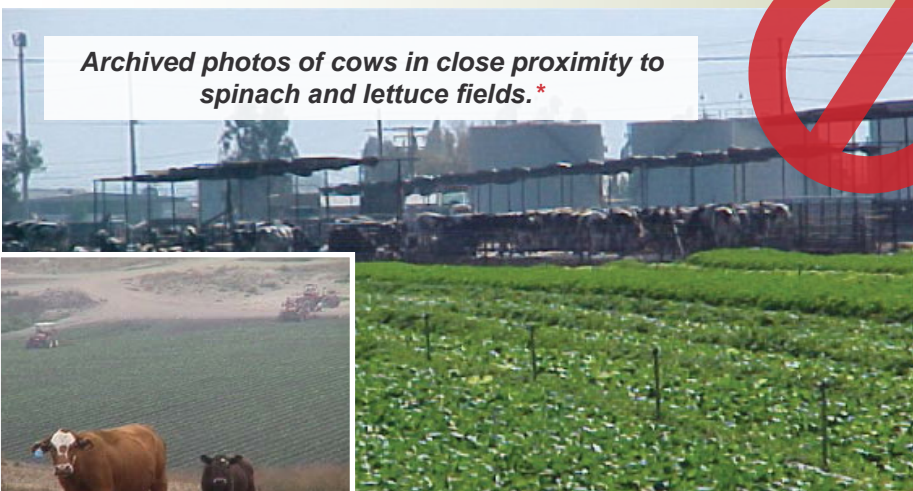
The images below depict manure management practices which either promote environmental stewardship and consumer health ("Do's") or endanger it ("Don'ts" which are marked with a warning circle: ).

Survey Farm




DO survey the crops grown in and around your dairy facility, manure storage, and application areas. Determine if untreated manure or manure water could contaminate any fresh produce (i.e., fruits, vegetables, or nuts). Animal forage crops are not at risk.

**Close proximity of cows to spinach and lettuce fields shown in archived photos is inconsistent with current California leafy greens standards.*



Archived photos of cows in close proximity to spinach and lettuce fields.*



Documentation

ATTACHMENT D **Documentation of dairy farmer and recipient of manure**

Manure/Process Wastewater Tracking For Existing Milk Cow Dairies

Instructions:

- 1) Complete one manifest for each hauling event, for each destination. A hauling event may last for several days, as long as the manure is being hauled to the same destination.
- 2) If there are multiple destinations, **complete a separate form for each destination.**
- 3) The operator must obtain the signature of the hauler upon completion of each manure-hauling event.
- 4) The operator shall submit copies of manure/process wastewater tracking manifest(s) with the Annual Monitoring Report for Existing Milk Cow Dairies.

Operator Information:			
Name of Operator: _____			
Name of Dairy Facility: _____			
Facility Address: _____		City: _____	Zip Code: _____
Contact Person Name and Phone Number: _____		Name: _____	Phone Number: _____
Manure/Process Wastewater Hauler Information:			
Name of Hauling Company/Person: _____			


DO properly document, when selling or giving away manure or manure water, the type and amount of manure product (i.e., stacked or composted manure, lagoon water), where it will be applied, and its nutrient content.




Certain jurisdictions may require nutrient analysis of manure leaving the farm

Treatment


Manure being composted to lower bacterial levels




DO compost manure applied to fresh produce fields according to US Composting Council standards. Simply stacking manure may not achieve adequate composting temperatures.



Dairy Lagoon Water




Pictured is a field with clean irrigated water; used for illustrative purposes only



DON'T allow untreated manure or manure water to be applied to ready-to-eat produce fields.

Tailwater



DO have adequately sized and functional tailwater return to prevent off-site discharge.



Pipe draining manure water from forage field into public waterway



DON'T allow tailwater containing manure to leave your property under any circumstances.

Berms



DO maintain well-functioning, adequately sized berms free of erosion and rodent damage.



Broken berm due to erosion



DON'T allow berms to fall into disrepair allowing manure water to run off-site.

The DO's & DON'Ts of Dairy Manure Management, cont.

Valves & Pipes



DO maintain control of all water that has come in contact with manure or feed nutrients.



DON'T cross connect manure and freshwater pipelines without adequately designed backflow prevention. Do not use faulty, inadequately-sized, or adapted valves in manure systems.

Well Water



DO have adequately designed backflow prevention from well heads.



DON'T use units with inadequate backflow prevention.

Ditch Water

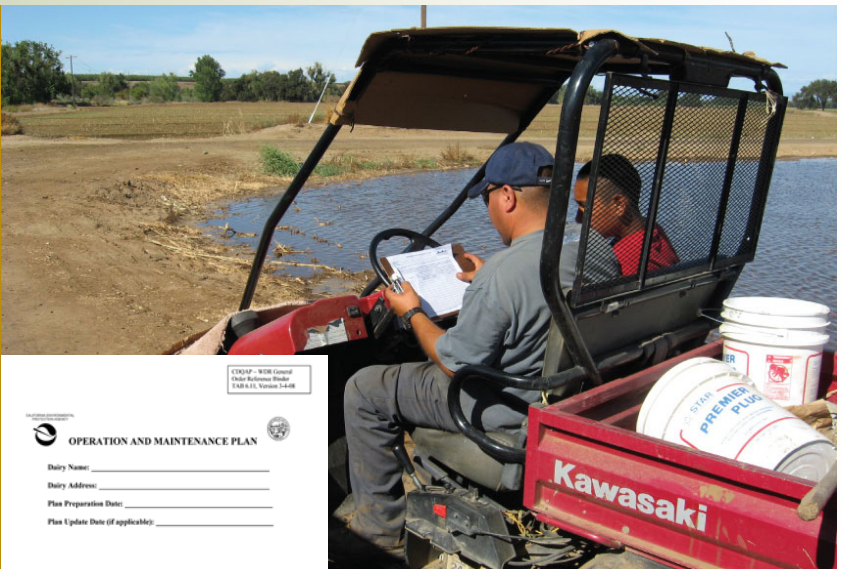


DO install and maintain drop boxes or double gating between manure fields and the irrigation district water.



DON'T connect manure application or storage areas directly to irrigation source water.

Maintenance



DON'T allow poorly maintained equipment to result in off-site discharge of manure water.

Waiting Period



DON'T lease out raw manure-treated fields for fresh produce production without a 1-year waiting period.

Thank you to our collaborators for their contribution of photos and expert review:

Purdue University
Agriculture and Agri-Food Canada
Agriculture et Agroalimentaire Canada
Food and Drug Administration
Western Pacific Region
US Dept. of Food and Agriculture
Natural Resources Conservation Service
The Central Valley Regional Water Quality Control Board
of California
Colleen Blouin, Coll's Garden

This reference was brought to you by:

CALIFORNIA DAIRY
Quality Assurance
PROGRAM
www.cdqa.org

WESTERN INSTITUTE FOR
FOOD SAFETY AND SECURITY
UC DAVIS
UNIVERSITY OF CALIFORNIA
www.wifss.ucdavis.edu

cdfa
www.cdfa.ca.gov

Funding for this project was provided, in part, by the University of California Davis Division of Agriculture and Natural Resources.