



Non-Point Source Pollution Program
**Regional Water Quality Control Board,
Santa Ana Region**
California Environmental Protection Agency

Agricultural Facts: Dairy Waste Management

The Chino Basin, within the Santa Ana River Basin, has one of the highest concentrations of dairy animals in the world. Minimizing water quality impacts from dairies is part of the Santa Ana Region's region-wide watershed management initiative. Our dairy permitting and surveillance program is an important element in this initiative. All dairies in the Santa Ana Region are required, by permit, to have Engineered Waste Management Plans (EWMPs). Strict adherence to EWMPs is the key to reducing the impact of dairies on water quality.

Six basic practices have been identified that can complement EWMPs, by effectively minimizing dairy runoff, reducing the water quality effects of dairy runoff when it does occur, and improving dairy waste management in general. These practices are often called Best Management Practices, or BMPs. The six basic practices include the following: (1) Keep clean stormwater separate from feed leachate and manure. (2) Improve waste liquids collection and storage. (3) Improve waste solids collection and storage. (4) Provide effective waste liquids irrigation and disposal. (5) Provide effective solid waste storage, application, and disposal. (6) Protect and enhance existing environmental resources. Finally, an effective dairy permitting and surveillance program is important to ensure that EWMPs are implemented throughout our region.

(1) Separate clean and contaminated water:

- Divert clean rainwater runoff around, not through, corrals and holding pens.
- Divert clean roof runoff water away from corrals and holding pens.
- Divert clean roof runoff away from manured areas by guttering and diversions.
- Minimize manured area runoff by adjusting confinement area fences.
- Minimize manured area runoff by roofing areas with high manure concentrations.

(2) Improve waste liquids collection and storage:

By law, waste liquids, including manure, washwater, feed leachate, and surface runoff from manured areas, must be effectively contained for later removal. The following are also key elements of EWMPs:

- Size retention ponds to provide enough freeboard for a 25-year, 24-hour storm event.
- Collect runoff from corrals, holding areas, milking parlor, and other manured areas.
- Contain waste liquids at remote feed racks, water troughs, and other animal concentration areas.
- Maintain pumps, equipment, and piping systems as required to manage liquid storage facilities. In addition, disk ponds and fields prior to the rainy season in order to improve percolation.
- Provide equipment for pumping from storage ponds to disposal areas.
- Develop and practice an emergency plan to handle spills from liquid waste storage areas.

(3) Improve waste solids collection and storage:

- Designate temporary animal waste storage areas, and size them for current and expected future needs.
- Minimize confinement areas to the extent possible.
- Scrape confinement areas before wet season.
- Maintain separator systems, if in use.
- For manure and compost piles, provide storage facilities with satisfactory drainage controls and be sure to cover piles.
- Collect and store waste solids from remote locations (feed bunkers, water troughs, etc.) in a storage area designated for this purpose.
- Collect and retain runoff water from designated waste storage areas.

(4) Provide effective waste liquids irrigation and disposal:

- Use functional custom operator or self-owned equipment on a timely basis for liquid disposal. If necessary, keep a pump on hand.
- Adjust application location and rate to meet crop and pasture demands. As a rule of thumb, in the climate of the Santa Ana Region, about twelve to eighteen inches of dairy wastewater can be applied annually per acre of good forage crop.
- Maintain disposal equipment properly.
- Clean retention ponds and dispose of excess liquids on an annual basis.

(5) Provide effective solid waste application and disposal:

- Clean storage pits and dispose of solids on (at least) an annual basis.
- Use custom operator or self-owned equipment on a timely basis.
- Maintain disposal equipment properly.
- Disk disposal fields and bottoms of ponds prior to the rainy season to improve percolation

(6) Protect and enhance existing environmental resources:

- Exclude livestock from riparian areas and drainages.
- Utilize diversion structures in confinement areas to enhance manure collection and reduce erosion.
- Utilize diversion structures and provide for manure and runoff collection at remote feeding and watering areas.
- Utilize resource recovery methods such as composting manure into fertilizer.
- Utilize compost as fertilizer in recommended agronomic rates. For double-cropping fodder crops, recommended agronomic rates are 12 dry tons (17 wet tons) of manure per acre per year.
- Water conservation management can be achieved by training dairy staff to minimize wastewater production, installing or adjusting timers, and changing to low-flow sprinkler heads.

The work of Dennis Salisbury, with the North Coast Regional Water Quality Control Board, was very helpful in compiling this information, and his contribution to this fact sheet is gratefully acknowledged.