

San Joaquin County & Delta Water Quality Coalition

Watershed News

May 2013

New regulations and reporting requirements by Regional Board

By Mike Wackman
SJC & DWQC

Growers will have new regulations under the new Irrigated Lands Regulatory Program currently being considered by the Regional Water Quality Control Board. These regulations include more surface water monitoring, groundwater monitoring, reporting of fertilizer usage and a requirement for the implementation of certain farming practices considered to improve water quality.

Farmers have been reporting pesticide usage for years. Now the Regional Board is considering making farmers report their nitrogen fertilizer use via a nitrogen management plan. Each farmer would have to calculate how much nitrogen will be applied to the crop, how much the crop will use, how much nitrogen was removed with the harvest of the crop, then calculate a ratio of nitrogen use

efficiency. If the efficiency ratio, which is the amount of nitrogen supplied over the amount of nitrogen the crop needs, is considered to be higher than what would be required to be protective of water quality, the farmer would be required to implement farming practices to prevent excess nitrogen from migrating towards the groundwater. Each year farmers would be required to submit nitrogen use information to the Coalition and be required to keep a nitrogen budget on farm to be made available for a regulator to review during a farm inspection.

Farmers will also have to complete farm evaluation plans each year that must be turned into the Coalition and be kept on the farm to be made available to Regional Board inspectors if they come on your property. These plans will tell the regulators what crops are being grown on your property, what practices you have in

place to prevent runoff from your fields and the type of erosion controls that are implemented to prevent soil erosion into the waterways.

Farms which are susceptible to sediment erosion into waterways will have to develop a sediment erosion control plan. These plans will have to be signed by a professional soil scientist or engineer.

These new requirements were scheduled to be implemented in 2014. However, due to lawsuits brought by the San Joaquin County & Delta Water Quality Coalition and others on the inadequacies of the environmental impact report, the timeline for implementation of the Waste Discharge Requirements will probably be delayed. At this time it is uncertain what impact this delay will have on the regulations. One thing is for certain, increased expenses to farmers due to the new regulations.

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Financial update - what your dues pays for

By John Brodie
Financial Officer

The Coalition once again enters the new year in sound financial condition. While that is good news for you as a member, that's not necessarily good news for you as a grower. Why?

The membership fees the Coalition uses to assist your compliance with California water quality regulations continues to come in as projected. The Coalition, under the steward-

ship of the San Joaquin County Resource Conservation District (RCD) Board of Directors, continues its successful efforts to maintain expenses at or below budgeted amounts. That is the good news.

The bad news is that Central Valley Regional Water Quality Control Board regulatory staff continues to pile on activities that force expenses up. The additional responsibilities include studies and monitoring for Total Maximum Daily

Load (TMDL) compliance and regional monitoring programs for materials allegedly discharged by agriculture but not part of the current Irrigated Lands Regulatory Program (ILRP).

These expenses don't include increases that will likely be forced on growers as part of new Waste Discharge Requirements (WDRs) for the Long Term ILRP.

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"Any waste (e.g., pesticides, nutrients, and sediment) that leaves the irrigated land surface and reaches groundwater or surface water is regulated." Regional Board Framework

Management practices tell a story

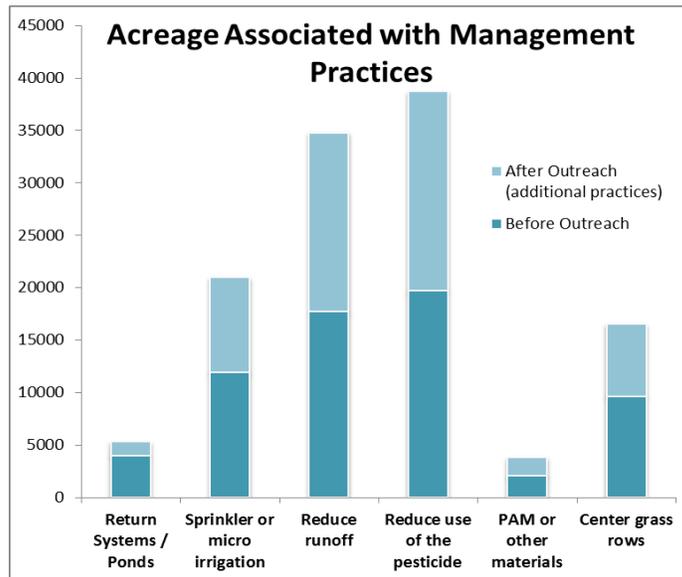
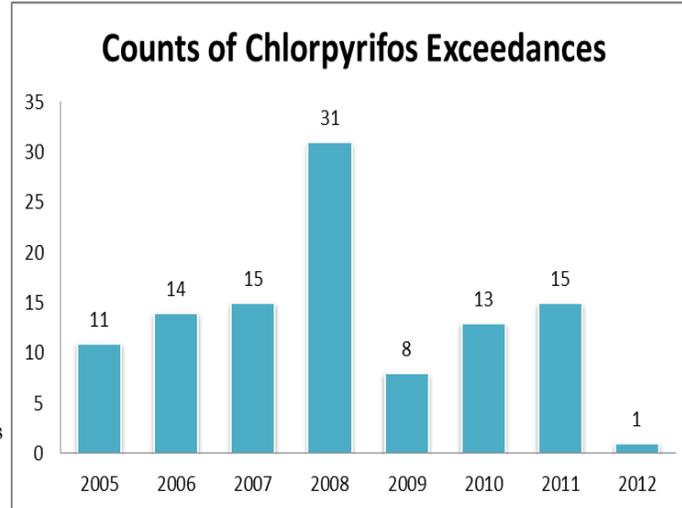
By Melissa Turner
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Water quality results coupled with management practices tells a positive story of how Coalition members are taking actions to protect water quality.

The Coalition reports annually to the Central Valley Regional Water Quality Control Board (Regional Board) water quality results from sampling locations on waterbodies throughout the Coalition region. These locations are monitored to evaluate the impacts of agricultural discharge on beneficial uses. Water quality results are also used to assess effectiveness of management practices and improvements in water quality.

In 2012, the Coalition monitored 15 locations to assess trends in water quality: 5 locations were monitored for core constituents, 1 site to assess the full suite of required monitoring constituents and 9 sites were monitored as management plan monitoring locations. Management plan monitoring has been initiated due to past water quality impairments.

One of the major water quality concerns within the Coalition area has been detections of chlorpyrifos (e.g. Lorsban). There is a Total Maximum Daily Load (TMDL) for chlorpyrifos and diazinon for the Sacramento-Delta area. The Coalition has focused its management plan strategy and outreach on reducing the detections of chlorpyrifos in waterways. When a detection is greater than the water quality objective or trigger limit, it is an exceedance. The greatest number of chlorpyrifos exceedances occurred in



2008 (31) and the least number occurred in 2012 (1).

Other water quality exceedances occurred in 2012 including exceedances of water quality objectives for diuron, copper, nitrate, bacteria, salts, dissolved oxygen and pH.

Toxicity occurred in two water samples collected in 2012 and six sediment samples. Overall, 11% of the samples collected in 2012 resulted in an exceedance of a water quality trigger limit or toxicity.

The Coalition has been tracking management practices within sub-watersheds requiring a manage-

ment plan since 2009. The Coalition attributes the reduction of chlorpyrifos exceedances to additional management practices implemented by Coalition members.

The Coalition relies on members to record their management practice information on surveys. The information from the surveys are compiled, aggregated and reported to the Regional Board as a part of the Coalition's management plan strategy.

The Coalition continues to track management practices implemented by Coalition members before and after outreach efforts. The Coalition has been able to report to the Regional Board that members are already implementing irrigation management practices (before outreach) and many of the growers contacted during outreach later implemented additional measures to control discharges.

Water and sediment monitoring results are important measures of management practice effectiveness. In

2013 the Coalition will continue to conduct water quality monitoring and report results to the Regional Board. It is important for growers to continue to implement management practices, reducing the amount of both water and sediment runoff due to agricultural practices.

In order to maintain compliance with the chlorpyrifos and diazinon TMDL, the Coalition will conduct monitoring at three new locations within the Delta channels. It is anticipated that the Coalition's 2013 results will continue to tell the story of improved water quality as a result of member actions.

Sediment control for vineyards and orchards

By Terry Prichard

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Now that winter is over it is a good time to review sediment runoff issues caused by our high level of December rainfall, and look for potential solutions to implement for the next season. High early winter rainfall caused soil particle detachment and subsequent transport off many fields into drain ditches, creeks and streams. Discharge to such water areas is considered a prohibited discharge and subject to action by the Regional Water Quality Control Board. In fact, this past runoff season Board staff observed “the presence of sediment-laden water in the parcels' drainage system” which flowed to a creek, and that the field appeared to have no sediment erosion control measures in place.

The grower was notified of the discharges and was requested to provide evidence of practices implemented to prevent the sediment discharge before proceeding with to a violation.

In short, the Coalition was also notified by the Board that the grower was a Coalition member and with the Coalition's staff assistance the grower installed erosion control structures and planned practices for the next season—satisfying the Regional Board.

What practices can be implemented to reduce winter sediment loss?

The first and most desirable strategy is to implement practices on the field to minimize soil detachment, erosion, and transport of sediment from the field. The second strategy is to route field runoff through practices that filter, trap, or settle soil

particles.

Practices to Reduce Soil Particle Detachment

Detachment occurs when water splashes onto the soil surface and dislodges soil particles, or when wind reaches sufficient velocity to dislodge soil particles on the surface.

Crop residues or living vegetative cover (e.g. grasses/weeds) on the soil surface protect against detachment by intercepting and/or dissipating the energy of falling raindrops. Keeping sufficient cover on the soil is therefore a key erosion control practice.

Cover Crops

Cover crops can help protect the soil surface from droplet impact under winter rainfall and provide significant organic matter biomass for decomposition and microbial stabilization of soil aggregates. In addition, cover crop residue can slow the velocity of surface water; reducing erosion and subsequent depositional crusting. Winter annual cover crops are most often planted in orchards because they grow during the wet season, reducing the competition for water and nutrients that is a disadvantage of perennial covers. They are sown or allowed to reseed in the fall and mowed or disked in the spring. A winter annual cover crop - planted in fall, grown during the winter and early spring, and mowed or disked to remove it in spring - can produce as much as 3 tons of dry matter (above and below ground) per planted acre to preserve or increase organic matter and soil structure, resulting in improved water infiltration and surface stability. A comprehensive review of this topic is available in: Cover Crops for Walnut Orchards. ANR Publication 21627 (Grant et al. 2006)

Tillage

Many of our orchard soils are com-

pact near the surface as a result of summer cultural practices and fall harvest activities. The creation of a rough soil surface will break the force of raindrops and trap water, reducing runoff velocity and erosive forces. This benefit is short-lived, however, as rainfall rapidly decreases effectiveness of surface roughness. Typical practices include light disking or the use of a vertical mulching implement (Aero way®). The Coalition conducted studies under a grant from the State and found vertical tillage was effective for early rains but less effective for spring rains. The cover crop alternative was just the opposite, working best in the spring.

Practices to Reduce Transport within the Field

Sediment transport can be reduced in several ways, including the use of crop residues and vegetative cover. Vegetation slows runoff, increases infiltration, reduces wind velocity, and traps sediment. Reductions in slope length and steepness reduce runoff velocity, thereby reducing sediment carrying capacity as well. Terraces and diversions are common techniques for reducing slope length. Runoff can be slowed or even stopped by placing furrows perpendicular to the slope, through practices such as contour farming that act as collection basins to slow runoff and settle sediment particles.

Straw Bale Check Dam

To construct a check dam, place bales of clean straw bales bound with wire or plastic twine across an area of surface sheet flow or gully erosion, and anchor them into the soil surface with rebar or stakes.

Straw Wattles

Straw wattles or fiber rolls are designed to slow down runoff, reducing erosion and filtering and trapping sediment before the runoff gets into

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Finances— Expense of compliance

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2012 Annual compliance and operating expenses totaled \$1,100,877.23, which is \$219,033.11 below budgeted expenses. Most of the cost reductions were realized in the Coalition's technical and sampling categories. Coalition revenue was \$1,193,602.48. That is \$44,351.18 over expectations. The higher amount was due to new members joining and some members paying late fees.

The RCD is proud to once again note the low overhead cost of operating the program. One reason is that office expenses including rent, utilities, phone, and internet costs are provided in-kind by USDA NRCS. Overhead for 2012 was \$46,504.44, or just over four percent of total expenses.

Nearly 96% of compliance expenses includes \$194,879.00 paid to the State Water Board to cover the state's expenses for operating the program, or about \$.56/acre. If you will recall, the state formerly charged \$.12/acre to administer the program.

As a part of budget wrangling in 2009-2010, California lawmakers removed general fund support for regulatory activities of the waterboards and required all such funds come from those being regulated. The State Water Board subsequently approved the \$.56/acre fee, which is reflected in your annual membership amount.

Separate from the operating budget, the Coalition has a Contingency fund that RCD Directors have targeted to pay legal fees and negotiations on the structure of the long-term ILRP. Those expenses totaled \$42,608.18 during 2012. WDR negotiations have become more intense and court activity has increased; therefore contingency fund expenses are anticipated to increase sharply in 2013. Fortunately, the contingency fund is adequate to

cover the anticipated increases.

For 2013, the Coalition's operating expenses are \$33,212.92 over budgeted expenses for 2012. This is due to an increase in laboratory analysis fees. Additional monitoring may also be required. The approved budget calls for member dues at \$2.75/acre, which will bring in anticipated revenue about \$91,000 below expenses. The shortfall will be made up from the surplus from 2012.

Sediment control strategies

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watercourses. Straw wattles must be installed on contour.

Grassed waterway

A natural or constructed channel that is shaped or graded to required dimensions and established in suitable vegetation for the stable conveyance of runoff. Grassed waterways are an excellent way to stop erosion in areas of fields that have a concentrated flow of water.

Practices to Trap Sediment

Practices are also typically needed to trap sediment leaving the field before it reaches a riparian area. Deposition of sediment is achieved by practices that slow water velocity or increase infiltration.

Sediment Basins

A sediment basin or trap is created by constructing a basin located at the bottom of a slope where drainage enters a swale or waterway. When runoff volumes are small, basins can be effective for reducing offsite movement of sediment. Sediment removal efficiency declines rapidly when runoff is high enough to cause low retention times.

Vegetative Filter Strips

A vegetative filter strip is any area of dense grass or other vegetation—natural or planted—between the orchard and a nearby

waterway. Tall, sturdy, and hardy perennial grasses are preferred, since once established they withstand the force of runoff waters and summer drought conditions. The width of the strip required to effectively remove sediments depends upon the slope of the area draining into the strip. For slopes of less than 1 percent, the strip should be at least 25 feet wide, increasing proportionally with the increase in slope up to 50 feet wide for 10 percent slopes.

Unfortunately, new monitoring requirements for TMDL constituents (i.e. chlorpyrifos, diazinon) will drive costs even higher next year. The Coalition's new WDR, is expected to double the cost of the program *at minimum*. Exactly what will be required is still a matter of negotiation, and we are fighting hard to secure a program that addresses the state's water quality concerns in the most cost effective manner. At least to the Regional Water Board and staff, the cost of the program doesn't seem to be an important factor.

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Vegetated Drainage Ditches

A vegetative drainage ditch is a drain planted with dense grass or other vegetation that is designed to capture through runoff infiltration and filter out sediment. Short, sturdy, and hardy perennial grasses such as the dwarf fescues and perennial ryegrass are preferred, since once established they withstand the force of runoff waters and summer drought conditions. The width and depth of the vegetative drainage ditch required to effectively remove sediments depends upon the slope of the area draining into the strip as well as the volume and velocity of the tailwater. To be most effective, the tailwater has to flow at or below the height of the vegetation to trap particulates. Residue removal efficiency is strongly influenced by runoff flow rate per unit ditch wetted area.