East San Joaquin Water Quality Coalition

Parry Klassen
Executive Director

Merced River
In operation since 2003

2,297 Landowner / operators

540,782 irrigated acres
  - Madera, Merced, Stanislaus, Tuolumne, Mariposa counties

We manage group permit for our members
Board of Directors

Board Officers
- Parry Klassen, Board Chairman
  Coalition for Urban Rural Environmental Stewardship; fruit grower
- Wayne Zipser, Vice-Chairman
  Stanislaus Co. Farm Bureau almond grower
- Bill McKinney, Treasurer

Board Members
- Amanda Carvajal
  Merced Co. Farm Bureau
- John Eisenhut
  Hilltop Ranch, almond grower
- Brian Franzia
  West Coast Vineyards
- Richard Gemperle
  Gemperle Enterprises, almond grower
- Anja K. Raudabaugh
  Madera Co. Farm Bureau
- Alan Reynolds
  Gallo Vineyards, Inc.
- Albert Rossini
  Rossini Ag, grape grower
- Jim Wagner
  Wilbur Ellis Co.
- Mike Neimi
  Turlock Irrigation District

Non-voting
- Gary Caseri
  Stanislaus County Agricultural Commissioner
- David Robinson
  Merced County Agricultural Commissioner
- Bob Rolan
  Madera County Agricultural Commissioner
- Dianna Waller
  Natural Resources Conservation Service
- Dennis Wescot
  San Joaquin River Group Authority
- **Sacramento Valley Water Quality Coalition**
  - Bruce Houdesheldt

- **California Rice Commission**
  - Tim Johnson

- **Goose Lake Water Quality Coalition**

- **San Joaquin County & Delta Water Quality Coalition**
  - Michael Wackman

- **Westside San Joaquin River Watershed Coalition**
  - Joseph C. McGahan
  - David Cory

- **East San Joaquin Water Quality Coalition**
  - Parry Klassen
  - Wayne Zipser

- **Southern San Joaquin Valley Water Quality Coalition**
  - David Orth

- **Westlands Coalition**
  - Sue Ramos
ESJWQC Management Plan

Process

- Started surface water monitoring 2004
- Over 25 waterways with Management Plans in the ESJ region (2+ exceedances)
- “Prioritized” Subwatersheds
  - 2 year focused approach
  - Outreach and monitoring
- 200 grower visits by ESJWQC staff
Focused Outreach Approach

- Identify members with parcels adjacent to waterways
- ESJWQC – individual member meetings
  - Management practices survey
- Monitoring
- Follow up
  - Document changes in management practices
- Evaluate progress
Exceedances in 1st, 2nd and 3rd Priority Subwatersheds

- Percentage of chlorpyrifos detections above water quality standards compared to samples collected
- Percentage of copper detections above water quality standards compared to samples collected
New Program Requirements

**Coalition Responsibilities**

- Conduct monitoring and submit reports
  - Continue current surface water monitoring
  - Trend Monitoring Program (use existing wells)
  - Management Practices Evaluations
  - Provide summary reports on nitrogen use efficiency and management practices implemented
  - Annual Reports to Water Board
New Program Requirements

Grower Responsibilities

- Farm Management Practices performance standards (everyone)
  - Minimize waste discharge offsite in surface water,
  - Minimize percolation of waste to groundwater,
  - Minimize excess nutrient application relative to crop need,
  - Implement effective sediment discharge and erosion prevention practices to minimize or eliminate the discharge of sediment above natural background levels
  - Prevent pollution and nuisance,
  - Achieve and maintain water quality objectives and beneficial uses
  - Protect wellheads from surface water intrusion.
Groundwater Assessment Report

- Rank land vulnerability based on Assessment Report
  - High Vulnerability
    - Areas ID’d using DPR pesticide groundwater protection areas, State Water Board vulnerable areas
  - Low Vulnerability
    - Keep farm assessment / nitrogen budgets on farm
Legend
- Hydrology
- Cities
- Urban Boundary
  - V - Vulnerable - deep groundwater, low nitrate
  - HV1 - Highly Vulnerable - upgradient of urban drinking water
  - HV2 - Highly Vulnerable - downgradient of urban, elevated nitrate
  - HV3 - Highly Vulnerable - downgradient of urban, nitrate below MCL

Nitrate Conc. (mg/l)
1-10
10-20
20-45
45-100
>100

2005-2010

ESJWQC Vulnerable Regions & Well NO3 Conc. 2005-2010

Date Prepared: 01/21/12
ESJWQC
What Will Be Required

Grower Responsibilities

- Complete Farm Evaluation *(everyone)*
- Complete Nitrogen Management Plan
  (In high vulnerability groundwater area)
  - Certified by 3rd party or grower trained
  - Low vulnerability keep on site; no certification required
- Sediment and Erosion Control Plan
  (In areas identified as high vulnerability for erosion and sediment discharge)
- More time provided for farming operations < 60 acres total
Farm Management Plans

- Template to be developed by coalitions, reviewed by Water Board
- Report practices “protective of surface and groundwater quality”
- Periodic Updates
  - More frequently in high vulnerability areas
- Deadline for reports
  - High vulnerability: 2014
  - Low Vulnerability: 2017 (keep on farm)
What Will Be Required

Grower Responsibilities

- Implement Wellhead Protection
- Install Backflow Prevention
- Proper destruction of abandoned wells
- Participate in Coalition Outreach Meetings
- Allow property access to Regional Board at reasonable hours – For Compliance Inspection Purposes Only!
Nitrogen Management Plans

Key mechanism to minimize nitrogen discharge to surface and groundwater

- **High Vulnerability Areas**
  - CCA certifies nitrogen budgets for members
    - CDFA certification program in development
  - Member self-certification with training
  - Plans kept on site, summary info reported to Coalition

- **Low Vulnerability Areas**
  - Required but keep on farm
# Nitrogen Management Plan Worksheet

**Crop Year**: 2012  
**Member ID**: 1234  
**APN**: 111-00-222  
**Owner/mgr**: Joe Almond  
**Field**: A, B, C

## CROP NITROGEN DEMAND

<table>
<thead>
<tr>
<th>Crop</th>
<th>Nitrogen Needs / Uptake</th>
<th>Expected yield (Lbs of production/acre)</th>
<th>Nitrogen Crop Needs to meet expected yield (lbs of Nitrogen per acre)</th>
<th>Total Acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>Almonds</td>
<td></td>
<td>3000 lbs / ac</td>
<td>250</td>
<td>178</td>
</tr>
</tbody>
</table>

## NITROGEN APPLICATIONS AND CREDITS

<table>
<thead>
<tr>
<th>Crop</th>
<th>Total N applied to field (lbs/ac)</th>
<th>Recommended N</th>
<th>Actual N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitrogen fertilizers (conventional and organic)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dry &amp; Liquid Fertilizers</td>
<td></td>
<td>100</td>
<td>105</td>
</tr>
<tr>
<td>Foliar N fertilizers</td>
<td></td>
<td>100</td>
<td>90</td>
</tr>
<tr>
<td>Other N fertilizers</td>
<td></td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Organic Material N (manure, compost, etc.)</td>
<td></td>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td>Other N containing materials</td>
<td></td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td><strong>TOTAL N APPLIED</strong> (per acre)</td>
<td></td>
<td>215</td>
<td>200</td>
</tr>
</tbody>
</table>

**Soil Nitrogen Credits**

<table>
<thead>
<tr>
<th>Soil N ppm</th>
<th>Lbs N/acre</th>
<th>Lbs N/acre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitrogen from previous legume crop</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>N residual from manure applications</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Soil organic matter mineralization</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Nitrates in irrigation water (annualized)</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td><strong>TOTAL N CREDITS</strong> (per acre)</td>
<td>60</td>
<td>60</td>
</tr>
</tbody>
</table>

**Total N Credits and Applications**

<table>
<thead>
<tr>
<th>Crop N needs</th>
<th>Balance</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>275</td>
<td>25</td>
<td>1.100</td>
</tr>
<tr>
<td>260</td>
<td>25</td>
<td>1.040</td>
</tr>
</tbody>
</table>
Nitrogen Management Plan

Components

- Apply N at crop removal rates
  - Dairies regulated to 140% of crop use (N applications)
- Test well water for nitrogen levels (then adjust N applications accordingly)
- Leaf / tissue testing
- Soil testing

Deadline for reports

- High vulnerability: 2015 for crop year 2014
- Low Vulnerability: 2017 (keep on farm)
Nitrogen Management Plans & Summaries

- Goal is working toward improvements in Nitrogen management (when/if needed)
  - Focuses on crop needs – not total applied
  - Helps growers understand their use in context with like crops
  - Helps to identifies “outliers”
  - Will evolve into better management of nitrogen as information is developed
Reporting of nitrogen management plan information:

- Member submits summary form to Coalition
- Coalition compiles ratios
- Separates ratios into “Township,” crops
What township-size report should show:

- Where most growers are with nitrogen ratios
- The “Outliers:” those who apply too much
- Outliers focus of outreach with commodity specific information/references
Potentially applying too much N (outliers)

Reported Nitrogen Ratios

Crop

Most growers (UC recommended rates)
Would you be willing to work with a CCA to complete a nitrogen management plan?

(73 Responses)
Identify company(s) to perform well water testing for N levels? (Deliver own sample)

(65 Responses)
Do you sample your supply for nitrate levels?

(66 Responses)
Do you adjust your fertilizer applications based on the nitrate levels?

Yes, 66%

No, 34%

(47 Responses)
Management Practice Effectiveness Studies

Confirm that management practices implemented to improve groundwater quality are working

- Are agricultural management practices protective of groundwater?
- Modify practices if needed

Coordinated effort by coalitions/commodity groups to complete

- Share expense across Central Valley
- Coalition to present Water Board with phased approach
- CURES USDA project to be starting point for approach
  - Literature search
  - Interview experts in field
GROUNDWATER

WELL

1 FEET

Drip Hose

6 FEET

WELL

GROUNDWATER
How do we best determine volume of nitrogen moving past the root zone?

Direct measurement under each field
  -- Enormous data collection
  -- Impractical

Mass loading estimates based on field trials
  -- Must be representative sites in trials
  -- May need new science to ID approaches

Fate and transport
  -- New science needed
ESJWQC / Third Party Approach

What we are not …
- Commodity group / farm organization
- Lobbying organization

What we are …
- We hold a “group permit” for our members to the Water Board
- Operate efficiently as possible
- Provide info to make tough farm management decisions
Third Party Approach

Notwithstanding legislative action in 2013…

• Coalitions (third party) are best suited to receive and compile nitrogen fertilizer use information
  • Info will be combined with farm evaluation information
  • Both are needed for effective improvements in nitrogen use
  • This is not Pesticide Use Reporting (PUR)
Third Party Approach

• Coalitions have greater flexibility to adapt as knowledge / information is gained
  • Can be adjusted to fit regional/local needs
  • Water Board gets information it needs for its own decisions

• Funding comes from the members, not the legislature
  • It’s cost effective approach for both growers and government