



SUMMARY OF TOTAL NITROGEN APPLIED REPORTING REQUIREMENT DATA

CENTRAL COAST REGION

Chris Rose
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Outline of Presentation

1. Requirement
2. Nitrogen applied
3. Moving forward

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Why Total Nitrogen Applied Reporting?

- Nitrogen impairments
- Address this source and track progress

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Outreach Plan

- Developed and Implemented-January 2016
 - Executive Staff: SB and CDFA
 - Grower/Consultant Workshops
 - Grower Shipper (north and south)
 - Farm Bureau
 - CCGC staff and board
 - Environmental justice
 - Environmental community
- Resulting presentation today

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What is Reported

- Mass of nitrogen applied in fertilizers and amendments to specific crops on a crop-acre basis.
- Average nitrate concentration in irrigation water, the mass of nitrogen applied on the ranch with this water.

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Who is Required

- Ag Order: three tiers
- Requirement applied to subset of tiers 2 and 3
 - High risk of loading N to groundwater
 - High risk crops
- ~600 of 4300 ranches report TNA
- ~55% enrolled acres growing high risk crops
 - ~28% report TNA

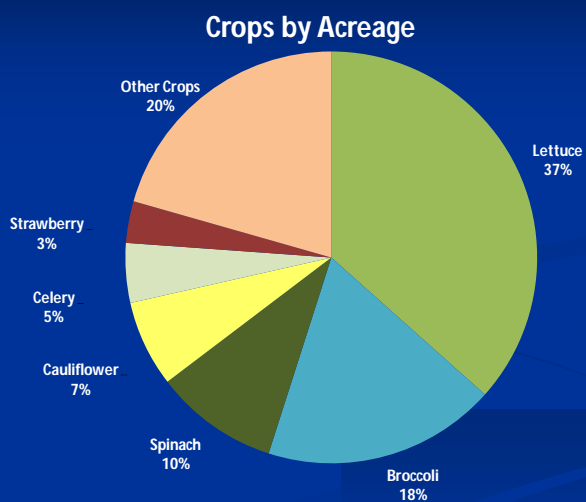
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Processing and Accuracy

- Grower reported data
- Review submittals
- Follow-up w/abnormalities
 - Contacted about half of the 600 ranches reporting
 - Corrections submitted
- High applications verified
- Confidence

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Summary of Crops Reported (2015)

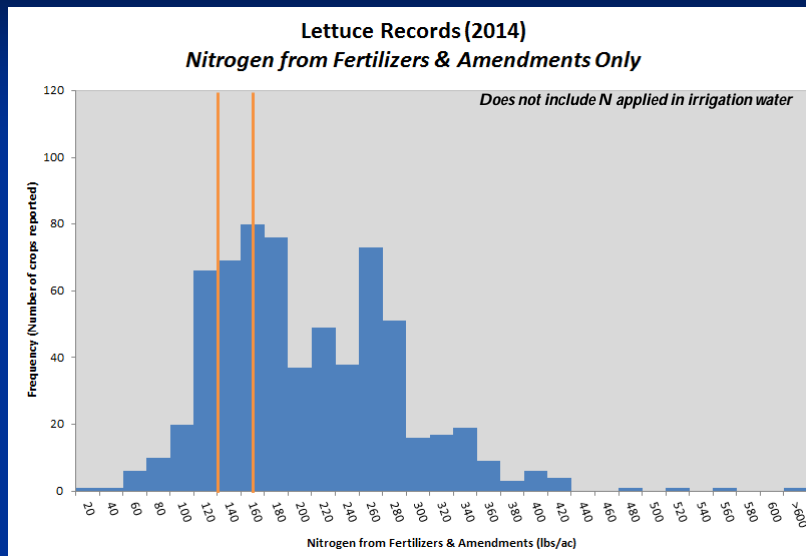


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Fertilizer Nitrogen Applied

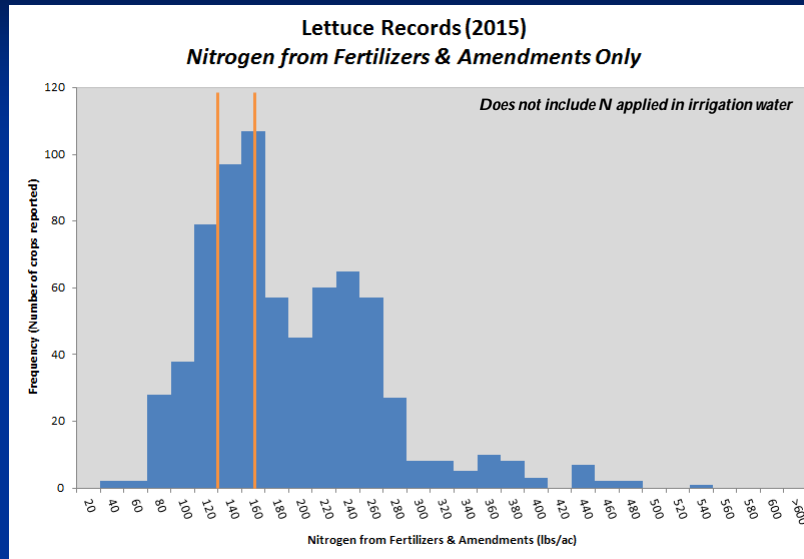
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Grower Reported N from Fertilizers



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Grower Reported N from Fertilizers



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Fertilizer Nitrogen Applied Observations

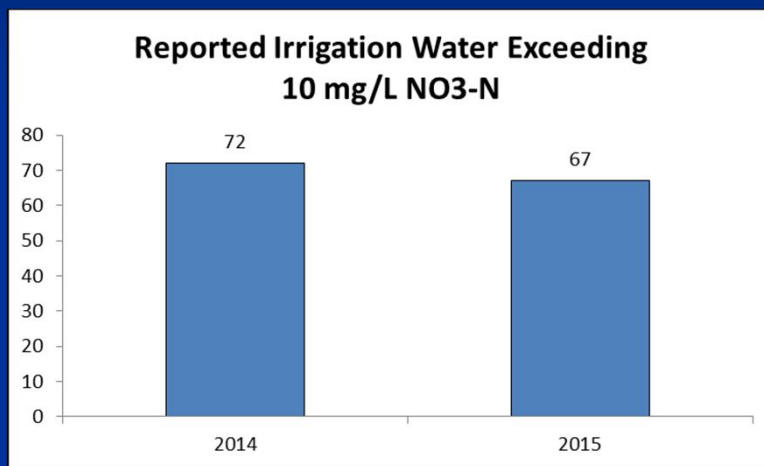
- Range of fertilizer application rate
 - Below uptake range
 - Within and around uptake range
 - Above the uptake range
 - Application reduction 2014 vs 2015
- True across all crops reported

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Nitrogen Availability in Irrigation Water

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Percent of Irrigation Water Exceeding Nitrate Standard-Reported on TNA Report



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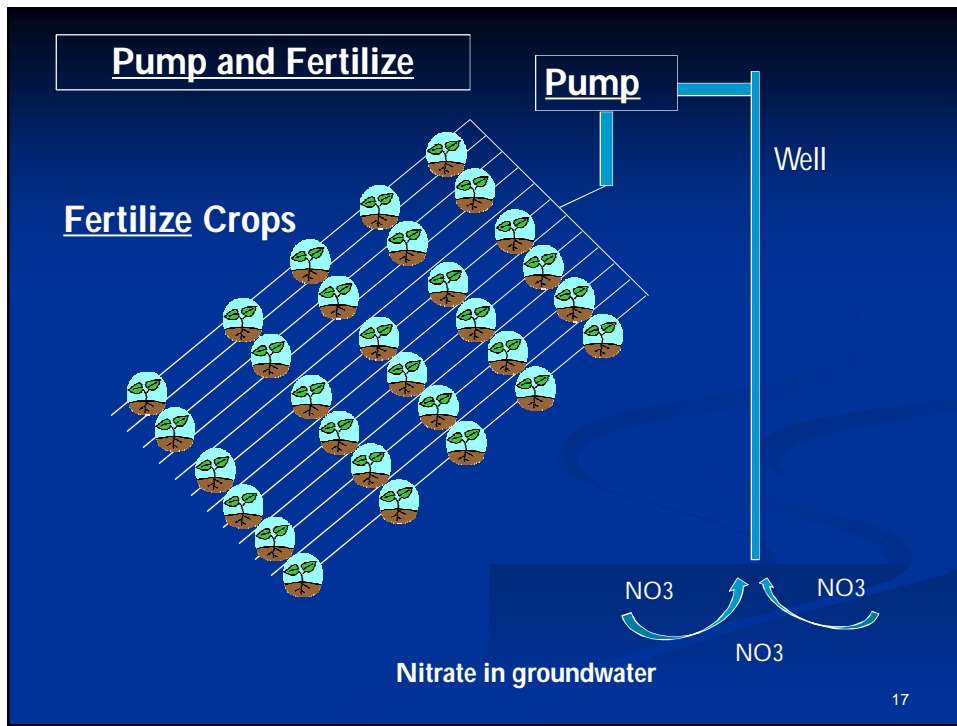
Groundwater Nitrate Concentration

- Average irrigation nitrate concentration reported
 - 0 to >1000 mg/L NO₃-N reported on TNA
 - High proportion exceeding standard
 - Recall groundwater results (item 19)
- Availability of groundwater nitrate

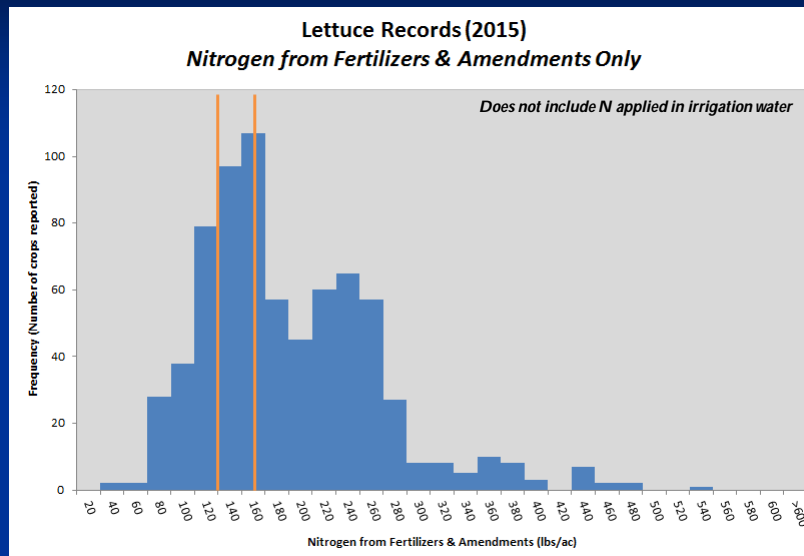
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**Growers accounting for N in
irrigation water when
determining fertilizer need?**

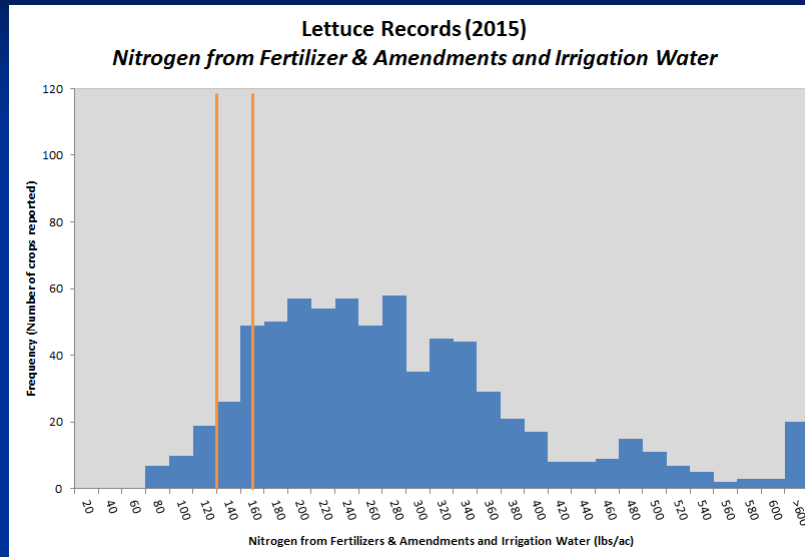
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COPY OF: Grower Reported N from Fertilizers



Grower Reported N from Fertilizers + Irrigation



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Accounting for Water N?

- Statistical analysis
 - Nitrate Concentration vs fertilizer used
- Results
 - No relationship
 - By drainages, crop, area
- *Most* growers not accounting for N in irrigation water when determining how much fertilizer to use.

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Opportunities for Reducing Fertilizer Nitrogen Application

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Management Practices

1. Align nitrogen application with crop uptake
2. Account for irrigation water nitrogen when determining fertilizer needed
3. Account for soil nitrogen when determining fertilizer needed, include un-harvested plant

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Example of Potential Fertilizer Reduction Scenario (one scenario, first steps)

1. Reduce fertilizer application on ranches that applied $\geq 2X$ crop uptake
2. Ranches applying ≥ 200 lb/ac in water, use $\frac{1}{4}$ of that N when determining fertilizer need
3. All ranches use $\frac{1}{4}$ of soil N, including crop residue N, when determining fertilizer need
4. **Result: 40% decrease in fertilizer N**

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Moving Forward

- Iterative process
 - TNA: Simple Indicator
- Demonstrate progress:
 1. Align N application with crop uptake
 2. Use irrigation water N
 3. Use soil nitrogen
- Education
 - Seize opportunities: FREP, UCCE
 - Trust and implement

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Moving Forward

- Compliance Assistance: meet with growers
- Who First
 - Coordination with ILRP groundwater
 - High application pattern
 - Nitrogen contamination
 - Reduction opportunities

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Summary

- TNA important requirement
 - Simple indicator
- Opportunities for improvement
 - Fertilizer nitrogen loading can be reduced
 - Align with crop uptake
 - Account for irrigation water N
 - Account for soil N

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Discussion

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