Nitrogen Fertilization in Central Valley Crops
Are We Doing it Right?
Parry Klassen
Executive Director

Central Valley Coalitions
- Sacramento Valley Water Quality Coalition
  - Bruce Houdesheldt
- California Rice Commission
  - Tim Johnson
- 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
- Westlands Coalition
- Southern San Joaquin Valley Water Quality Coalition
  - 7 new coalitions

4R Nutrient Stewardship:
Simple to grasp... continuous improvement

Source Rate
Time Place

Figure 1. Map of Central Valley coalitions
Total and Annual Dynamics of N in Mature Almond (data from 11-12 year old trees)

From dormancy to mid-March there is very little N uptake. Uptake commences at mid/leaf out and is essentially complete by hull split.

Perennial N:
- 450 lbs N in dormant perennial organs in Jan (includes labile stored N)
- 420 lbs N in perennial organs in March (30 lbs N remobilized).
- 35 lbs accumulated perennial N.

Uptake from Soil
Remobilization from Storage
450
420
30 lbs
+35 lbs
485

Almond : N accumulated per 1000 lb kernel yield
(68 lb N/1000 lb kernel yield average for highest yielding treatment
Range 54-74 lb N/1000 lb yield)

Management Practices Evaluation Program
MPEP

Examples of Potential Measurements in MPEP Field Studies

- N Applied as:
  - Commercial fertilizer
  - Cover crops/manure/compost
  - Irrigation water
- N Harvested with crop
- N stored (where applicable)
- N in Vadose Zone
- Soil cores
- N in Leachate
  - Suction lysimeters
- Also measure water applied through irrigation and rainfall on site

Coalition Overview

- In operation since 2003
- 3,563 Landowner / operators
- 698,354 irrigated acres
  - Madera, Merced, Stanislaus, Tuolumne, Mariposa counties
- Average size of member operation
  - 198.53 acres
- Electronic reporting
  - 17% (607 members)
- Paper reporting
  - 83% (2,956 members)
Nitrogen Fertilization in Central Valley Crops
Are We Doing it Right?

Parry Klassen
Executive Director