

# IRRIGATION WATER NITROGEN CREDITS



## BEST MANAGEMENT PRACTICES

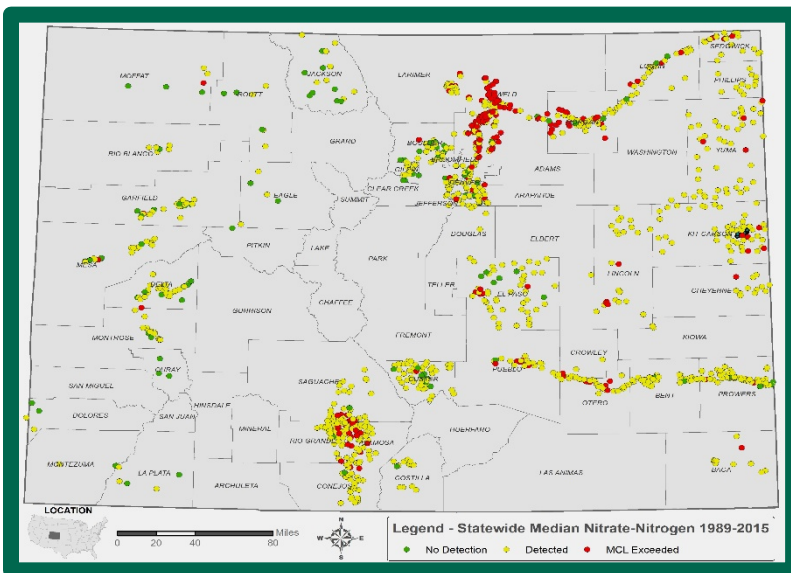
- Nitrogen credits are part of the *Right Rate* in 4R nutrient management.
- Irrigation water in some parts of Colorado contains significant nitrate-nitrogen
- Nitrate in irrigation water is immediately available for crop uptake
- Nitrate concentrations greater than 10 ppm are most likely to have reduced N fertilizer requirements
- Irrigation water should be sampled for nitrate as part of any nitrogen recommendation in areas of high groundwater nitrate
- $\text{NO}_3\text{-N ppm} \times 0.23 \times \text{inches of water applied} = \text{N credit (lbs/acre)}$  or an acre-inch of water contains 0.23 lbs of N for each ppm of nitrate-N

## IMPLEMENTATION REQUIREMENTS

Cost= LOW  
 Operation and Maintenance= LOW  
 Training= LOW

## EFFECTIVENESS

Crediting irrigation water nitrate has been shown to reduce fertilizer requirements, remove nitrate from groundwater, and reduce residual soil nitrate available for leaching.



## DESCRIPTION

Irrigation water nitrate crediting requires direct analysis of well water by field test kits or laboratories to accurately determine nitrate content. Sample the well twice during the first year to account for possible seasonal variability. In subsequent years a single sample should be sufficient.

Because crops take up the majority of the N required during the vegetative growth stages, only water applied during the early part of the growing season can be credited. Crop evapotranspiration (ET) during this time period can be used to estimate the amount of water to credit. Research in Colorado suggests that growers can credit up to 60 % of seasonal consumptive use of water nitrate and maintain their yield goal with careful management.