ALL MEMBER ANNUAL MEETING

DIXON/SOLANO RCD WATER QUALITY COALITION

HYBRID MEETING – OCTOBER 27, 2022

6 PM – 7 PM

PLEASE NOTE: THIS MEETING IS BEING RECORDED TO POST ON OUR WEBSITE FOR FUTURE VIEWING.

GROUND RULES FOR ZOOM PARTICIPANTS

- All participants will be muted for the presentation, you can unmute for the Question and Answer (Q & A) portion at the end of the event.
- Use the **Chat Room** for the following:
  - To sign in with your full name and email address if you are attending this meeting for INMP CEUs. You must keep your camera on if you want to earn the 0.50-hour credit.
  - To address any technical computer issues
  - For Q & A at the end of the presentation as an alternative to unmuting and asking a question verbally.

AGENDA

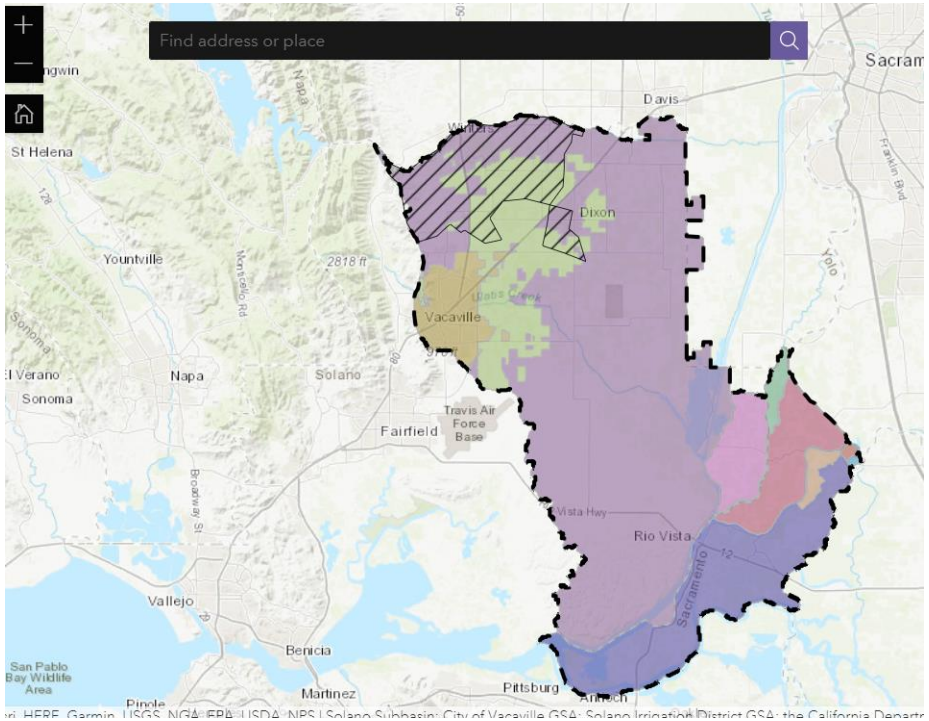
- SOLANO GROUNDWATER SUSTAINABILITY PLAN UPDATE – Kelly Huff, Dixon RCD
- COALITION UPDATE – Martha McKeen, Dixon RCD
- NITROGEN MANAGEMENT – Amy King, Solano RCD
- WATER MANAGEMENT and PESTICIDE DISPOSAL – Kevin Young-Lai, Solano RCD
- NRCS PROGRAMS – Teri Knight, NRCS
- Q & A – Dixon and Solano RCD Staff

SOLANO GROUNDWATER SUSTAINABILITY PLAN UPDATE

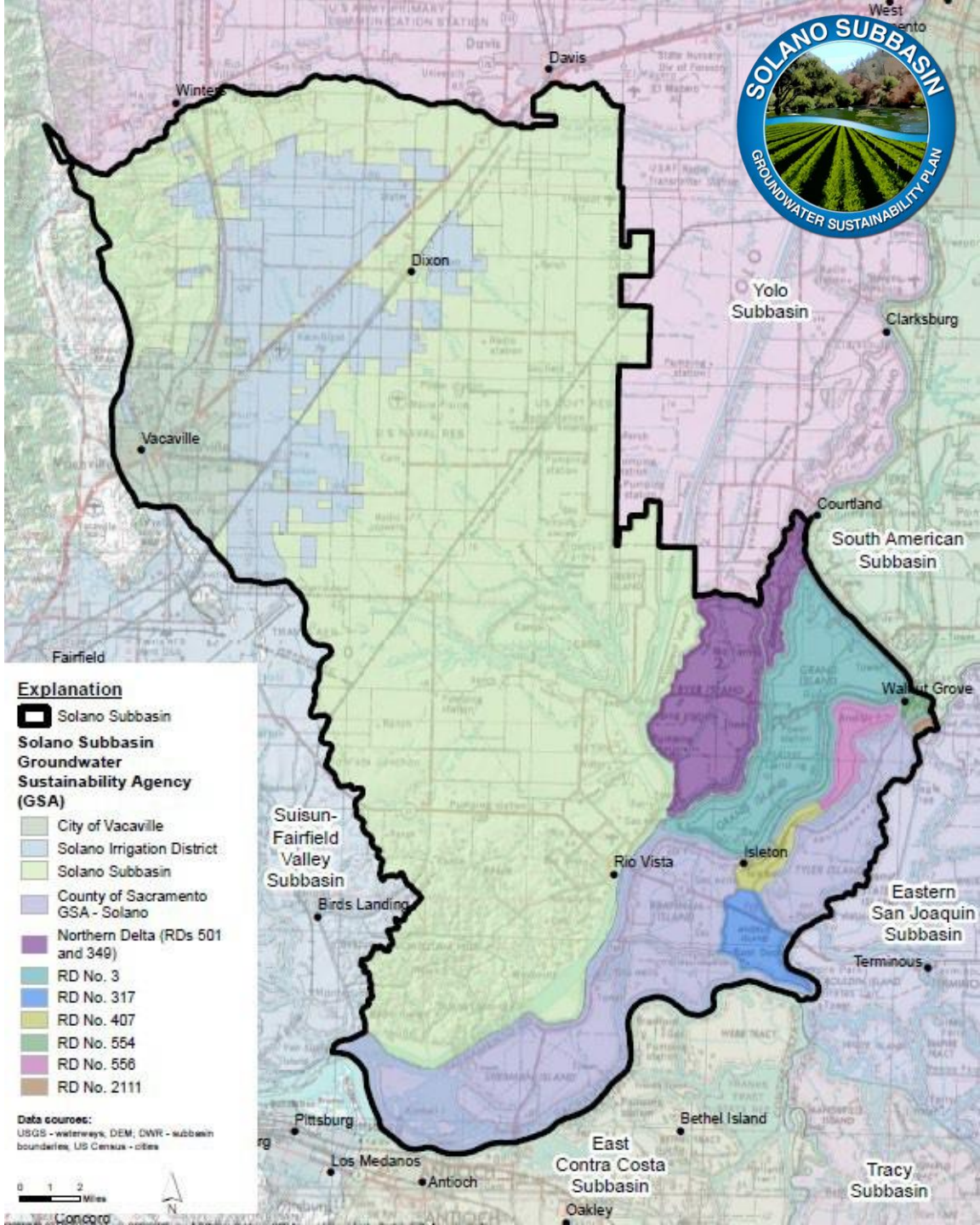
Kelly Huff – Dixon RCD

Solano Subbasin

- Groundwater Sustainability Plan (Plan Area)



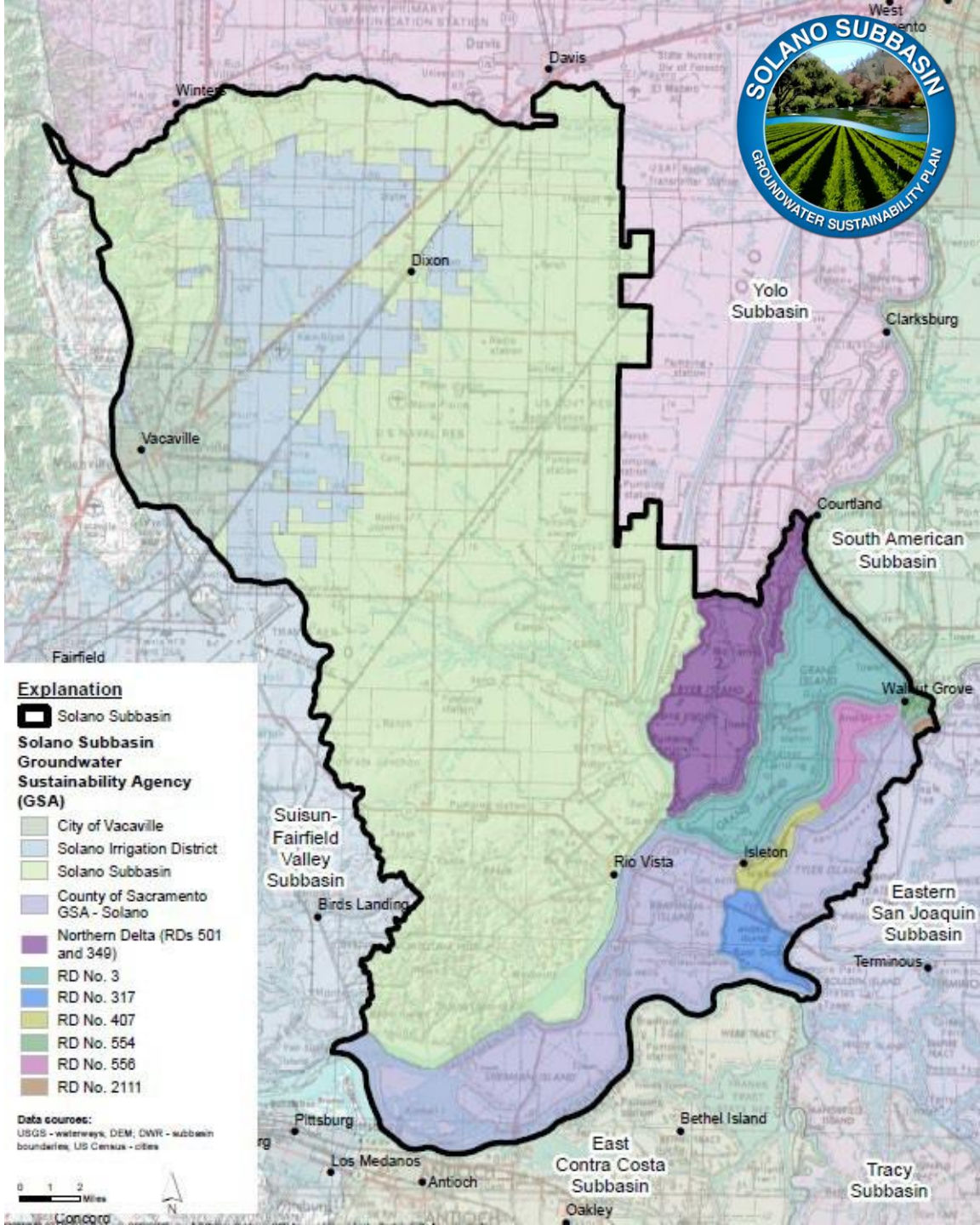
Interactive Map at www.solanogsp.com



Solano Collaborative

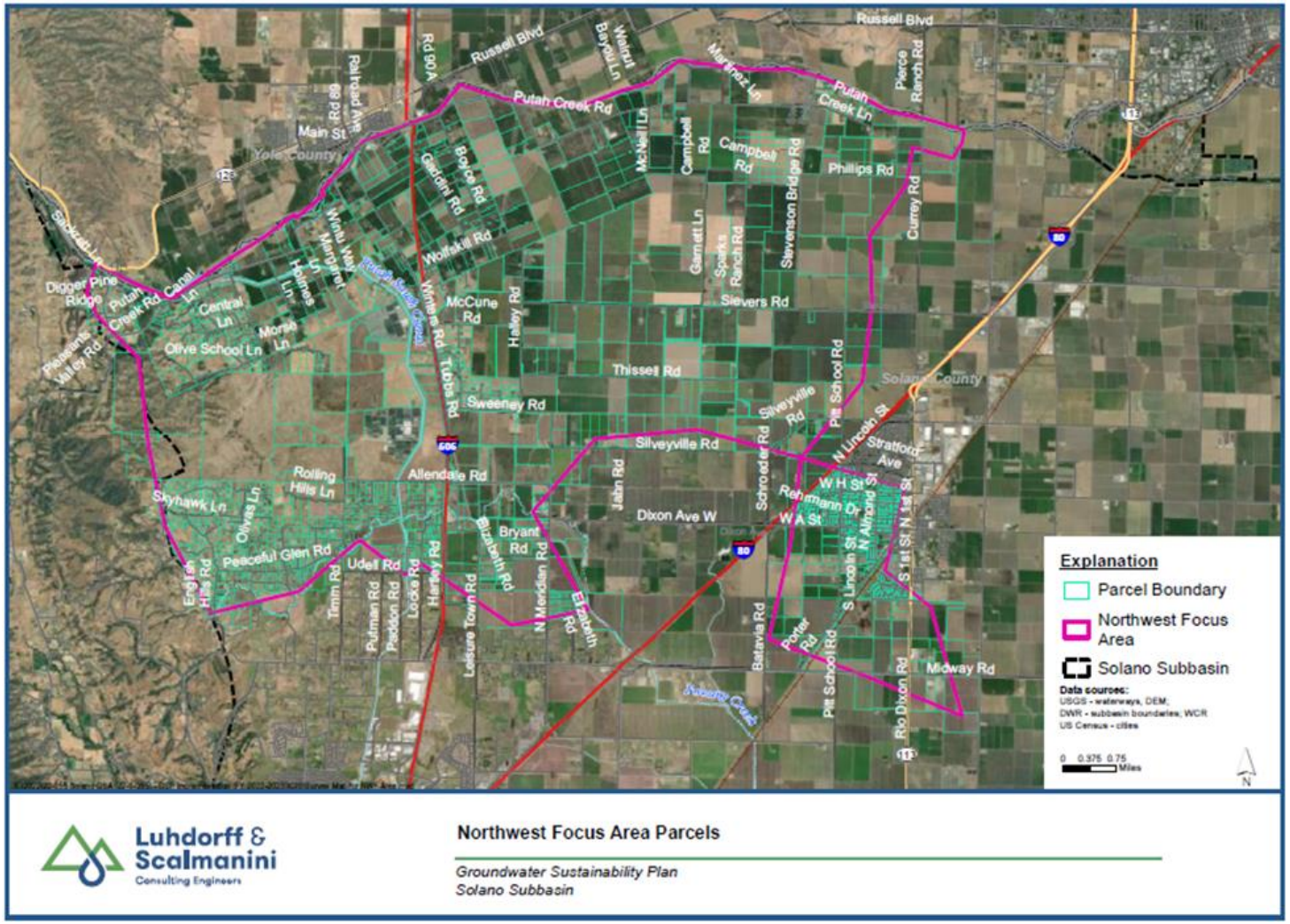
- City of Vacaville GSA
- Northern Delta GSA
- Sacramento County GSA
- Solano GSA
- Solano Irrigation District GSA

CONTINUE TO FUNCTION AS FIVE SEPARATE AGENCIES UNDER ONE GROUNDWATER SUSTAINABILITY PLAN



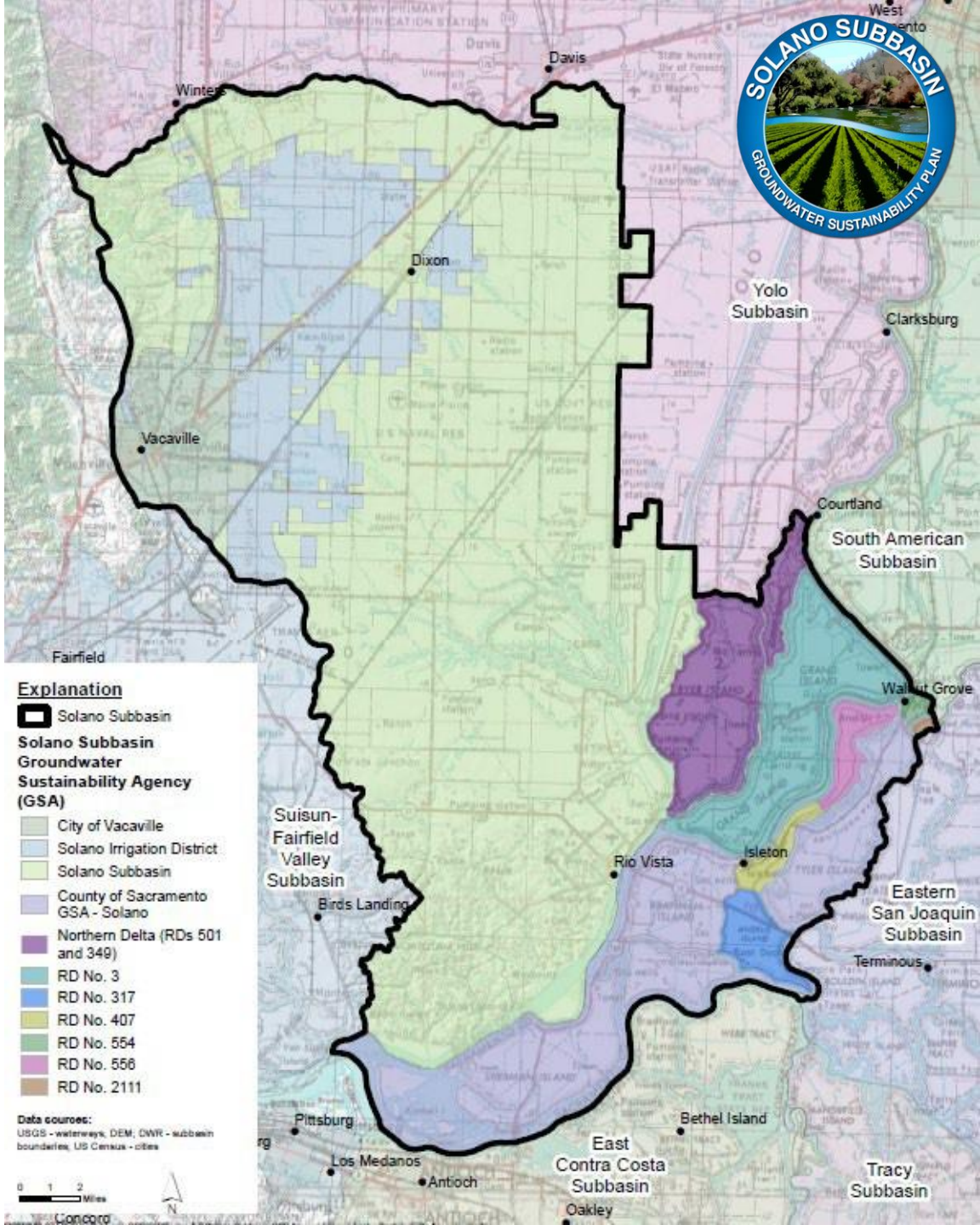
Groundwater Sustainability Plan Submitted to State in January 2022

- Overall Subbasin is considered in balance and sustainable 50 years into the future.
- Exception is Northwest Focus Area



Groundwater Sustainability Plan Submitted to State in January 2022

- Solano GSA adopted a flat $2.79 per acre fee 2023-2027.
  - Will consider alternative rate structures for future
  - Applying for grant funding



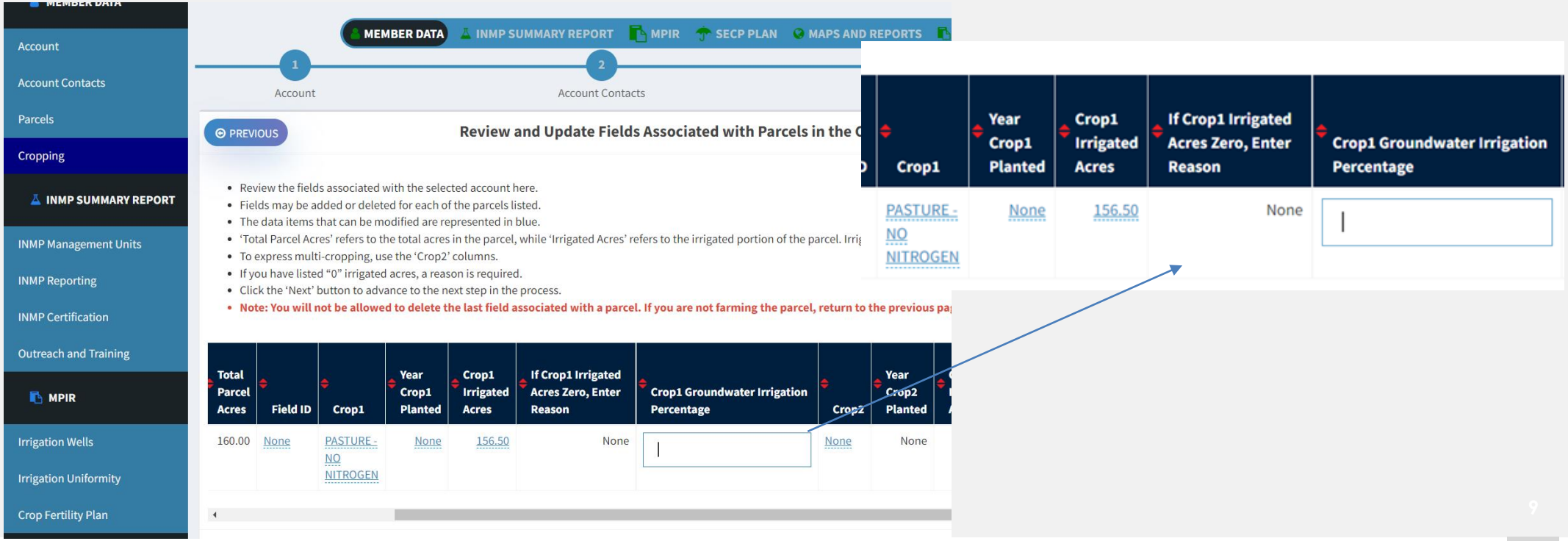
Solano Subbasin

Representatives on the Solano Subbasin GSA Include:

- Solano Farm Bureau
- Maine Prairie
- RD 2068
- Solano Ag Advisory Committee
- Dixon RCD
- Solano RCD
- (2) Solano County Board of Supervisors
- City of Dixon
- City of Rio Vista
- Cal Water

Dixon/Solano RCD Water Quality Coalition & GSP

- Keep coalition members informed
- Share information where it will avoid duplication of costs to landowners/operators
- Starting this year, collect data through ILRP Farm Reporting System to ground truth and improve GSP data on water use

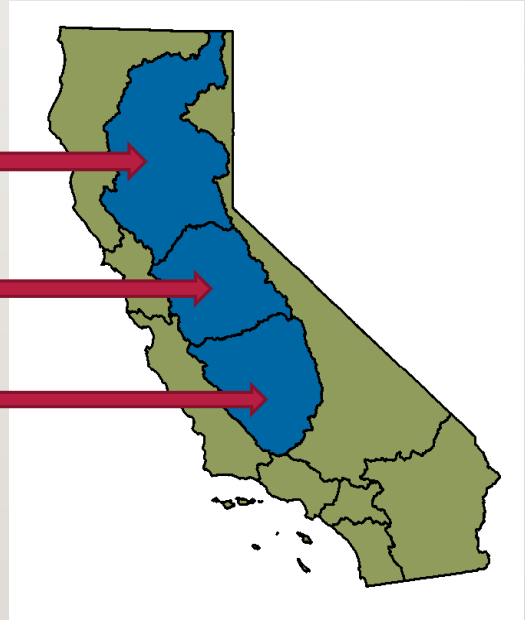


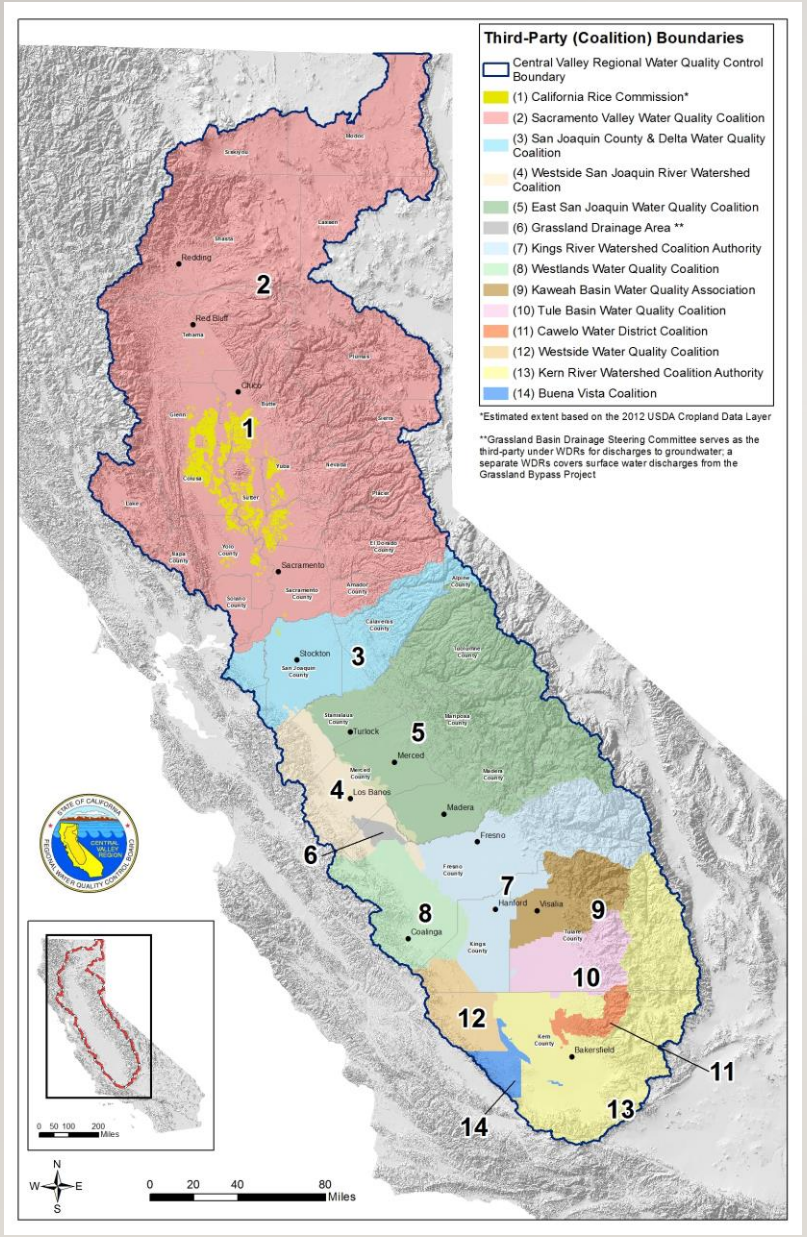
COALITION UPDATE

Martha McKeen – Dixon RCD

CENTRAL VALLEY REGIONAL WATER QUALITY CONTROL BOARD – REGION 5

- "Regional Board"
- Divided into three major watersheds:
  - Sacramento River Basin
  - San Joaquin River Basin
  - Tulare Lake River Basin





Third-Party (Coalition) Boundaries

- Central Valley Regional Water Quality Control Boundary
- (1) California Rice Commission*
- (2) Sacramento Valley Water Quality Coalition
- (3) San Joaquin County & Delta Water Quality Coalition
- (4) Westside San Joaquin River Watershed Coalition
- (5) East San Joaquin Water Quality Coalition
- (6) Grassland Drainage Area **
- (7) Kings River Watershed Coalition Authority
- (8) Westlands Water Quality Coalition
- (9) Kaweah Basin Water Quality Association
- (10) Tule Basin Water Quality Coalition
- (11) Cawelo Water District Coalition
- (12) Westside Water Quality Coalition
- (13) Kern River Watershed Coalition Authority
- (14) Buena Vista Coalition

SACRAMENTO VALLEY WATER QUALITY COALITION (SVWQC)

- SVWQC was formed by the Northern CA Water Association (NCWA) to oversee the program similarly to how DSRCDWQC administers the ILRP with both Dixon and Solano RCD staffing for the landowners of Solano County
- SVWQC holds the group permit with the Regional Board
    - Bruce Houdesheldt, Water Quality Director
    - Chelsie Bryden, Program Coordinator
- Dixon/Solano RCD Water Quality Coalition (DSRCDWQC) is one of 12 subwatershed groups that collectively represent 1.2 million irrigated acres.

Sacramento River Basin is the largest watershed in CA with approx. 27,000 sq. miles and 30% of the state's total surface water!

Sacramento River Watershed

Sacramento Valley Water Quality Coalition

12 Subwatersheds

<u>Upper Subwatersheds</u>

- Pit River
- Shasta-Tehama
- Upper Feather River
- PNSSNS
- El Dorado
- Lake
- Napa

<u>Valley Floor Subwatersheds</u>

- Colusa-Glenn
- Butte-Yuba-Sutter
- Yolo
- Solano
- Sac-Amador

SACRAMENTO VALLEY WATER QUALITY COALITION (SVWQC) – TOTAL BUDGET IS DOWN $500,000!

Two Year Savings Window

Annual Savings from Reduced Surface Water

Monitoring for ALL Subwatersheds

Offset by Continued Increases in Other Costs

- State Water Quality Fee – increase of 25 cents over last 4 years
- Inflation pressure on consultant costs
- Increasing groundwater requirement costs

ButteYubaSutter	$	4,059
PNSSNS	$	29,157
ColusaGlenn	$	80,689
Dixon/Solano	$	55,302
El Dorado	$	51
Lake County	$	3,585
Napa	$	81
NeCWA	$	2,928
SacAmador	$	104,092
ShastaTehama	$	40,355
UpperFeather	$	24
Yolo	$	28,228

FINANCES

FISCAL YEAR 2022 RECAP

- FY 2022 actual ending fund balance on June 30, 2022, was $192,193
- Anticipated $188,700
- Difference of $3,493

Reasons why?

- Groundwater & Surface Water compliance costs were less than expected

Dixon/Solano RCD Water Quality Coalition July 2021 - June 2022 Finances	
Total Income	**$ 452,558.93**
Membership Fees ($3.75/acre)	$ 451,493.47
Interest	$ 1,065.46
Total Expenses	**$ 521,557.36**
RCD Staff	$ 137,013.88
RCD Direct Cost	$ 8,956.02
Surface Water Monitoring	$ 95,678.03
Groundwater/Reporting Requirements	$ 106,575.62
SVWQC Fees	$ 26,294.17
State Board Fees ($1.29 per irr/acre)	$ 147,039.64
Fund Balance - 06/2022	**$ 192,193.30**

FISCAL YEAR 2023 PLANNING

Dixon/Solano RCD Water Quality Coalition July 2022 - June 2023 Finances	
Budgeted Income	**$ 447,297.12**
Membership Fees ($3.75/acre)	$ 445,797.12
Interest	$ 1,500.00
Budgeted Expenses	**$ 493,343.94**
RCD Staff	$ 146,161.00
RCD Direct Cost	$ 8,630.00
Surface Water Monitoring	$ 73,570.00
Groundwater/Reporting Requirements	$ 80,744.00
SVWQC Fees	$ 26,500.00
State Board Fees ($1.35 per irr/acre)	$ 157,738.94
Fund Balance - 06/2023 (Projected)	**$ 146,146.48**

Reminder: We estimate the Coalition budget in June – SVWQC does not complete their budget until November

- Even with the -$46,047 net position, no change to the per-acre fee this year - stays at $3.75
- Projected ending balance for June 30, 2023, is $146,146

GROUNDWATER

DRINKING WATER WELLS MONITORING

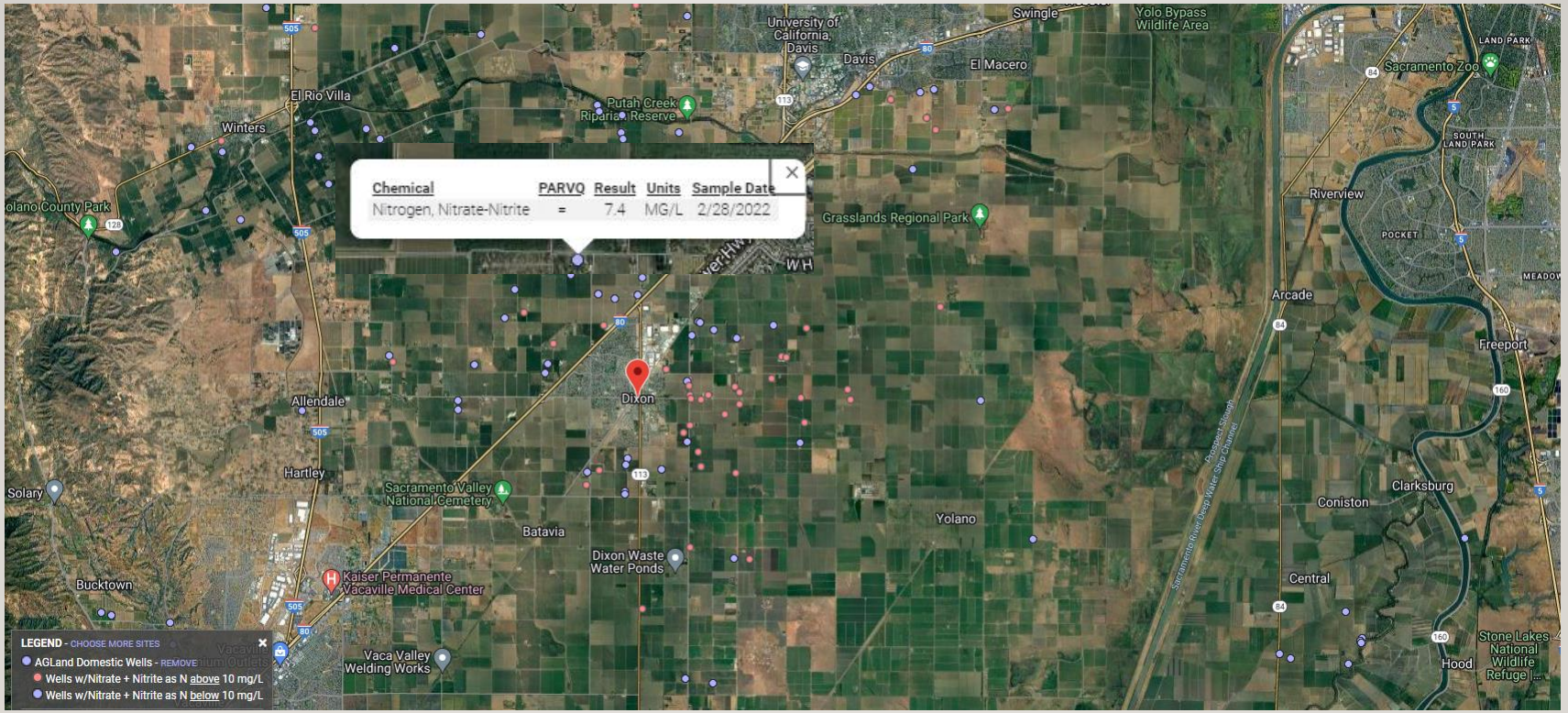
- As of January 2022, all parcels enrolled in the Coalition with active drinking water wells must have the water tested for nitrates by December 31, 2022.
- For more information, visit:

https://www.waterboards.ca.gov/centralvalley/water_issues/irrigated_lands/drinking_water/

Or

https://www.dixonrcd.org/drinking-water-well-monitoring

STATE *GEOTRACKER* WEBSITE



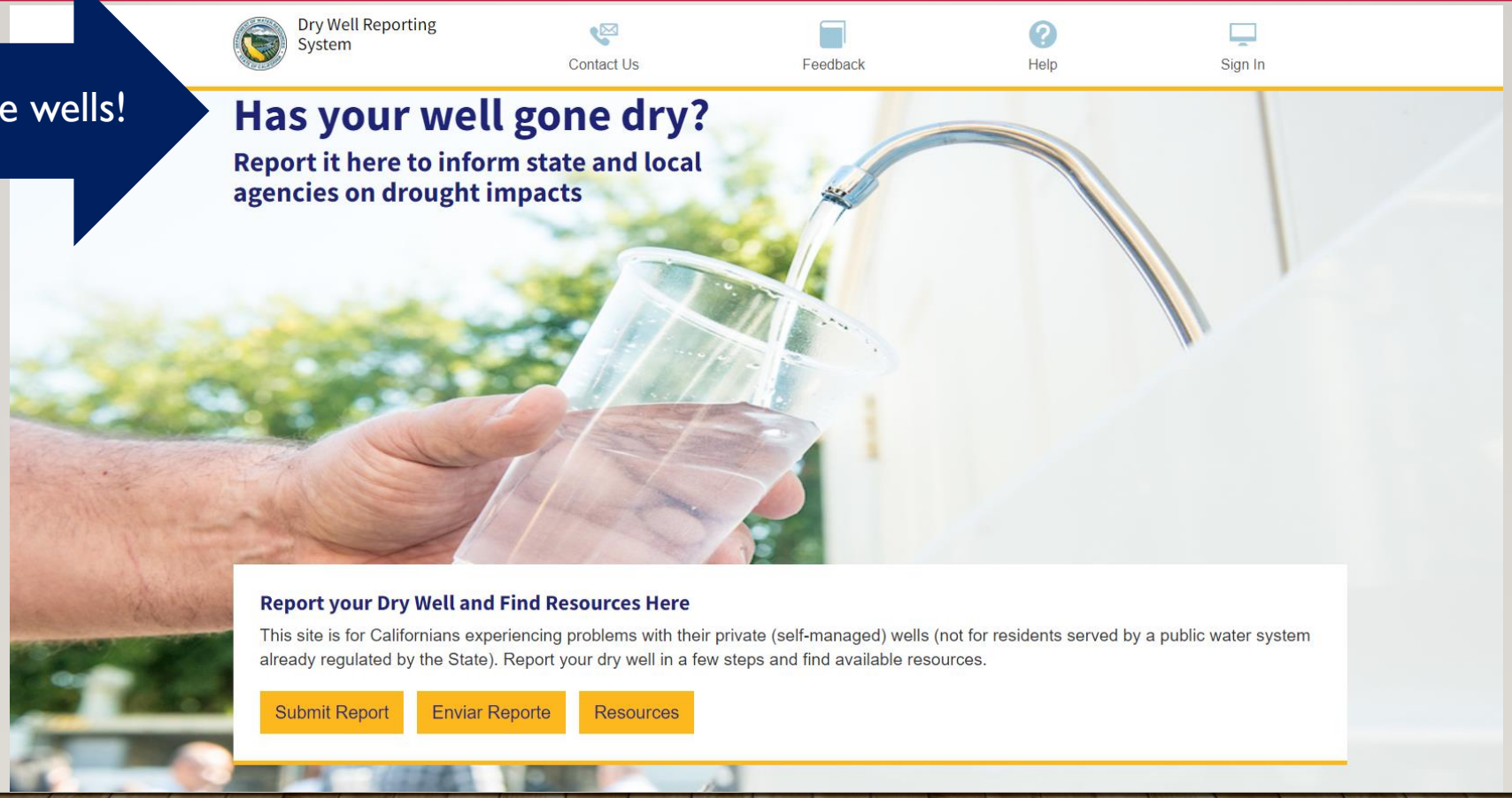
- Nitrate + Nitrite as N above 10 mg/L
- Nitrate + Nitrite as N below 10 mg/L

https://geotracker.waterboards.ca.gov/

TO REPORT A DRY WELL

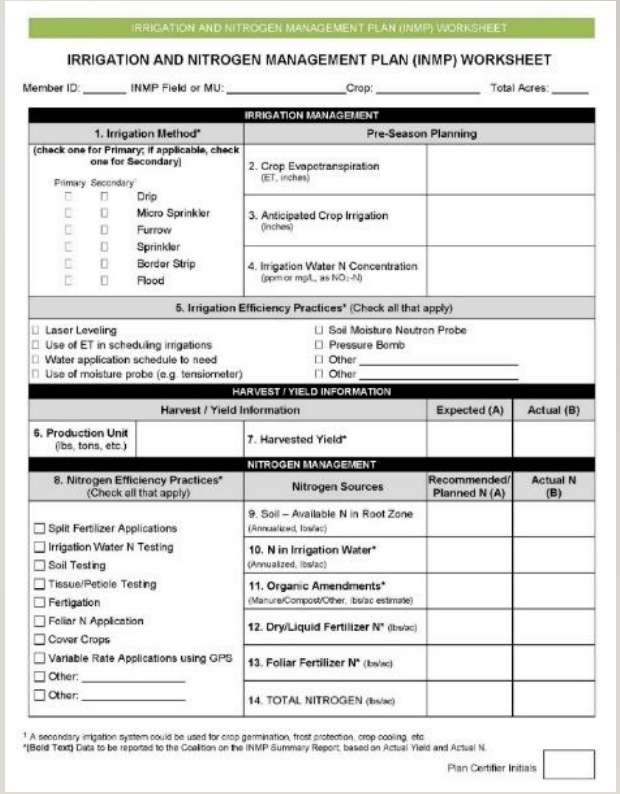
https://mydrywell.water.ca.gov/report/

Your own private wells!



GROUNDWATER PROTECTION

- Knowing if there are nitrates in water when applying fertilizer is important. Why?
- Budgeting the nitrogen and improving irrigation efficiency and water management reduces nitrate movement into groundwater.
- Solano RCD staff will be talking about this in their upcoming presentation.
  - INMP-Irrigation & Nitrogen Management Plan Worksheet-Exempt from completing the worksheet-Pasture-No N applied



IRRIGATION AND NITROGEN MANAGEMENT PLAN (INMP) WORKSHEET

IRRIGATION AND NITROGEN MANAGEMENT PLAN (INMP) WORKSHEET

Member ID: _____ INMP Field or MU: _____ Crop: _____ Total Acres: _____

IRRIGATION MANAGEMENT

1. Irrigation Method* (check one for Primary; if applicable, check one for Secondary)	Pre-Season Planning	
Primary Secondary ☐ ☐ Drip ☐ ☐ Micro Sprinkler ☐ ☐ Furrow ☐ ☐ Sprinkler ☐ ☐ Border Strip ☐ ☐ Flood	2. Crop Evapotranspiration (ET, inches)	
	3. Anticipated Crop Irrigation (inches)	
	4. Irrigation Water N Concentration (ppm or mg/L, as NO_3-N)	

5. Irrigation Efficiency Practices* (Check all that apply)

- ☐ Laser Leveling
- ☐ Use of ET in scheduling irrigations
- ☐ Water application schedule to need
- ☐ Use of moisture probe (e.g. tensiometer)
- ☐ Soil Moisture Neutron Probe
- ☐ Pressure Bomb
- ☐ Other _____
- ☐ Other _____

HARVEST / YIELD INFORMATION

Harvest / Yield Information		Expected (A)	Actual (B)
6. Production Unit (lbs, tons, etc.)	7. Harvested Yield*		

NITROGEN MANAGEMENT

8. Nitrogen Efficiency Practices* (Check all that apply)	Nitrogen Sources	Recommended/ Planned N (A)	Actual N (B)
☐ Split Fertilizer Applications	9. Soil – Available N in Root Zone (Annualized, lbs/ac)		
☐ Irrigation Water N Testing ☐ Soil Testing	10. N in Irrigation Water* (Annualized, lbs/ac)		
☐ Tissue/Petiole Testing ☐ Fertigation	11. Organic Amendments* (Manure/Compost/Other, lbs/ac estimate)		
☐ Foliar N Application ☐ Cover Crops	12. Dry/Liquid Fertilizer N* (lbs/ac)		
☐ Variable Rate Applications using GPS ☐ Other: _____	13. Foliar Fertilizer N* (lbs/ac)		
☐ Other: _____	14. TOTAL NITROGEN (lbs/ac)		

[1] A secondary irrigation system could be used for crop germination, frost protection, crop cooling, etc.
*(Bold Text) Data to be reported to the Coalition on the INMP Summary Report, based on Actual Yield and Actual N.

Plan Certifier Initials ☐

GROUNDWATER WORKSHOP*

WHEN: Tuesday, January 24, 2023

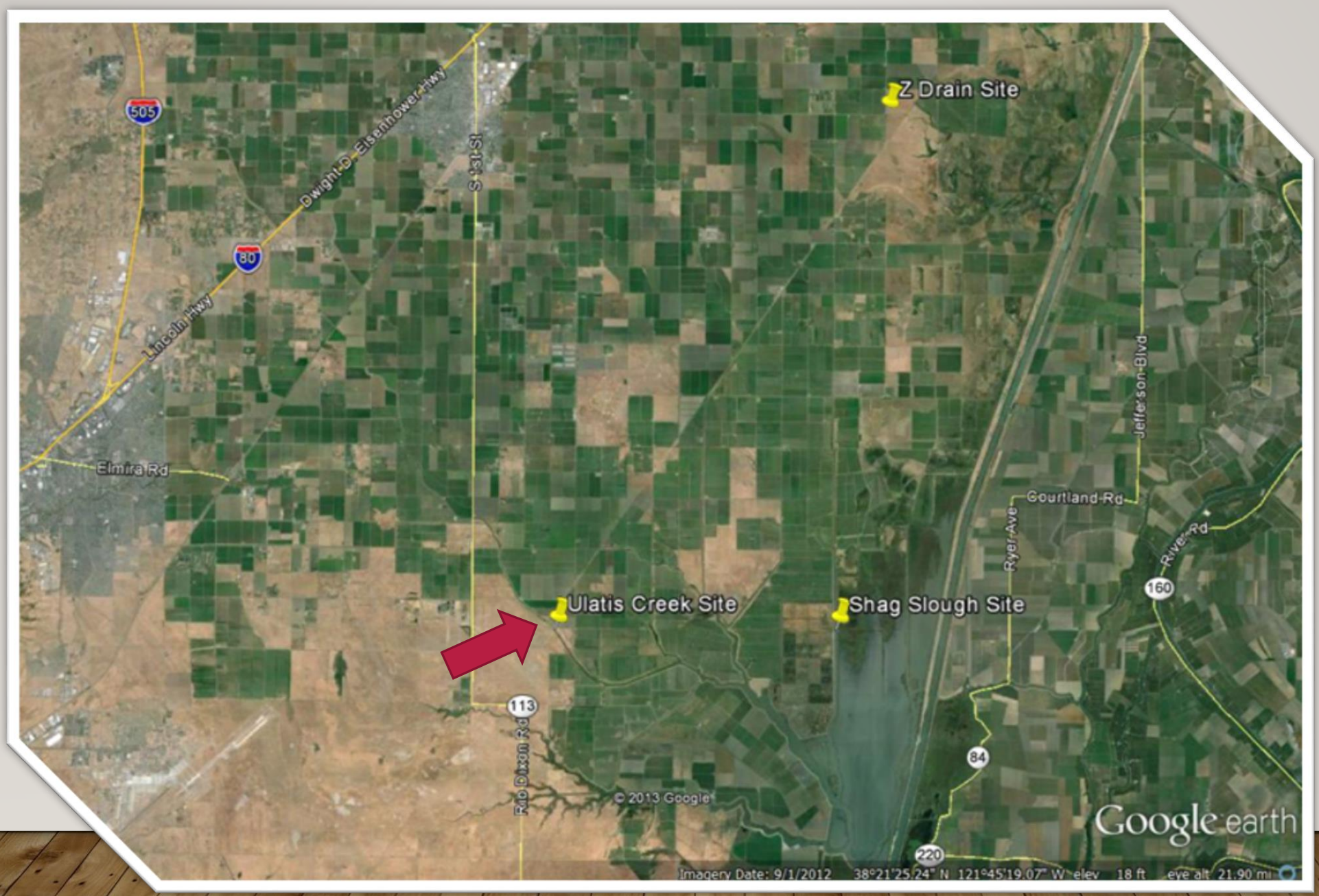
TIME: 9:00 AM – 11:30AM (Exact time TBD)

WHERE: Legion Hall Dixon, CA

Local groundwater experts will present interesting information on the topic. You won't want to miss it so mark your calendars!

*We will apply for CDFA INMP CEUs

SURFACE WATER



ZDDIX
Special Project
Monitoring Site
Not in use a this time

UCBRD
Representative
Monitoring Site
(Management
Plan for sediment
toxicity)

SSLIB
Integrative
Monitoring Site

SEDIMENT TOXICITY EXCEEDANCE

Ulatis Creek at Brown Road Monitoring Site

Date of exceedance: April 21, 2022

- Not enough data information to determine the likely cause.
- Cannot pinpoint if pyrethroid pesticides caused sediment toxicity exceedance.
- October and December 2021- Large storm events, possibly disrupted the sediment more than normal.
- Eight out of the nine monitoring sites in the Sac-Valley Coalition valley floor had sediment toxicity exceedances- abnormal occurrence.
- Extends Sediment Toxicity Management Plan for 3 years.

WATER QUALITY MONITORING
SEDIMENT TOXICITY – AUGUST 2022

WATER QUALITY MONITORING-WATER COLUMN

- On June 23, 2021, there was a water column toxicity exceedance at the Ulatis Creek monitoring site, where we have an active management plan for sediment toxicity.

Update since last year…

- As of today, we have not had another water column exceedance at the site.
- This could not have happened without the ongoing efforts of our growers/applicators to use BMP of pyrethroid pesticides.

SURFACE WATER MPIR*

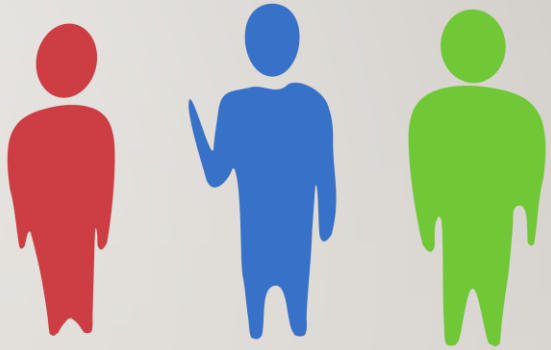
*Management Plan Implementation Report

- All pyrethroid users are required to complete this report
- It is a requirement of the current management plan for sediment toxicity
- It is a 13-question survey about irrigation and sediment run-off practices
- The report will be sent in summer 2023
- It is not in the DMT-data management tool-online reporting
  - It will be a different online survey, excel spreadsheet, or paper copy

MEMBERSHIP & PROGRAM UPDATE

STAFF AT DIXON RCD

- Kelly Huff is the District Manager
- Martha McKeen is the Program Coordinator
- Joanna Yac is the Office Manager



- We continue to partner with the staff of Solano RCD throughout the year and during the farm reporting season.

BOARD MEMBERS

DIXON RCD

- David Viguie
- Sam Beukelman
- Spencer Bei
- Eric Schene
- Daniel Jones
- Jim Campbell, Associate
- Leo Soukeris, Associate

SOLANO RCD

- Kurt Balasek
- Paul Lum
- Darrell Hill
- Randi Thompson
- Terry Riddle
- Kathie Stutz
- Chris Calvert
- Glenda Riddle, Associate

ADVISORY Ad Hoc COMMITTEE

- Bruce Brazelton
- Kurt Balasek
- Cork McIsaac – Rep. for Sac Valley
- Paul Lum
- Rick Martinez
- Spencer Bei
- David Viguie

To attend a board meeting, look for the agendas at: dixonrcd.org or solanorcd.org

INVOICING FISCAL YEAR 2023

- Member Fees for the program are $3.75 per irrigated acre…SAME with NO CHANGE from last year.

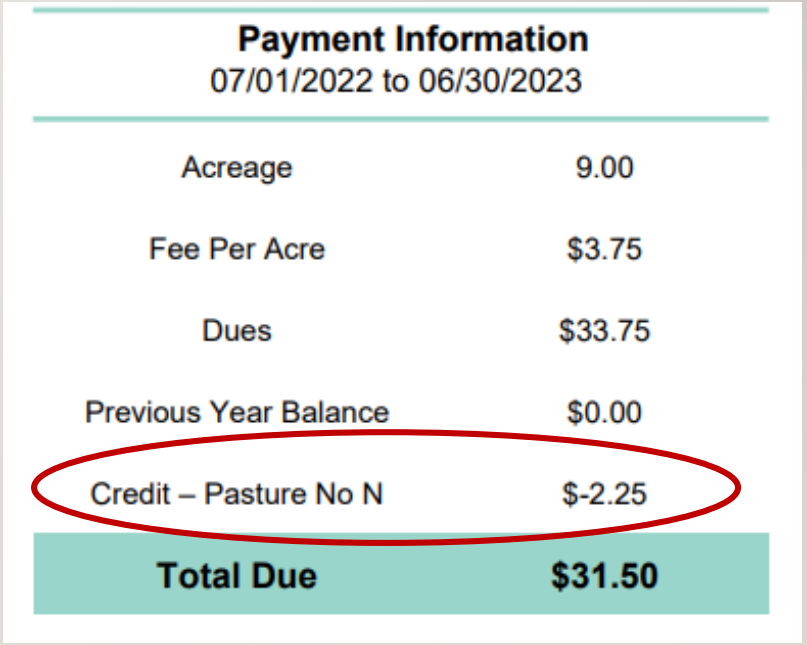
- SENT: Invoices were sent on October 1st
- DUE DATE: Invoices are due December 1st
- Currently, we are at 40% PAID.

INVOICING/BILLING-NEW THIS YEAR

Every little bit helps…

- Credit on parcels with PASTURE No N
- This year, all members received a credit on their invoice if they did not apply nitrogen to their irrigated pasture.

Example: FY 2022 was 0.25 multiply by 9 acres = $2.25 credit



Payment Information 07/01/2022 to 06/30/2023	
Acreage	9.00
Fee Per Acre	$3.75
Dues	$33.75
Previous Year Balance	$0.00
Credit – Pasture No N	$-2.25
Total Due	**$31.50**

POLICY REMINDERS & UPDATES

- Reminder farm reporting is due on February 15th. After that date, late fees apply. (Policy: 20% of all fees owed or $100, whichever is more.)
- If farm reporting is not received or is incomplete by July 1st, you are placed on an enforcement list that the Coalition is required to give to the Regional Board.

MEMBERSHIP TOTALS

- 653 - Members enrolled
- 1,490 - Parcels enrolled
- 119,284 - Acres enrolled

FARM REPORTING CROP YEAR 2021

- 98% of growers completed their Overall Farm Reporting
- That means six members did not complete their farm reporting.
- The Regional Board sent letters to those members for failure to comply with program requirements
- Now let's see what's up for 2022 crop year reporting…

FARM REPORTING CROP YEAR 2022

- A detailed farm reporting letter will be sent on November 28th via email. Farm reporting is due:

February 15, 2023

  - Late fees apply after 02/15/2023
  - Late Reporting Fees: 20% of membership fees or $100 whichever is more.

FARM REPORTING CHECKLIST CROP YEAR 2022

ALL MEMBERS ARE REQUIRED TO REPORT THE FOLLOWING IN THE DMT:

- ❑ Verify My **INFO** (contact information)
- ❑ Verify **ACCOUNT**, Reporter name, account completion & account balance
- ❑ Verify **ACCOUNT CONTACT,** billing contact
- ❑ Verify **PARCELS**
- ❑ Verify **CROPPING,** irrigated acres & crop year for permanent crops
- ❑ Complete **INMP SR,** management units, reporting & certification
- ❑ Complete **OUTREACH/TRAINING –** enter the education event "attended"
- ❑ Complete the **MPIR –** irrigation wells, irrigation uniformity, and crop fertility plan
- ❑ Verify **SECP Plan –** acknowledge understanding of requirements
- ❑ Complete **INMP WORKSHEET –** Download a copy for crop year 2023 and keep onsite on-farm

FARM REPORTING CROP YEAR 2022

- DMT – Data Management Tool
  - Do you still have your login? If not, contact us ASAP.
  - If you are a new member that did not report in crop year 2021, your login will be sent to you this reporting year.
  - If you are an owner that has a reporter (tenant) complete your farm reporting, then they have a separate login.

VISIT: dixonrcd.org/irrigated-lands

Click on the green button to take you to the login portal.

FARM REPORTING CROP YEAR 2022

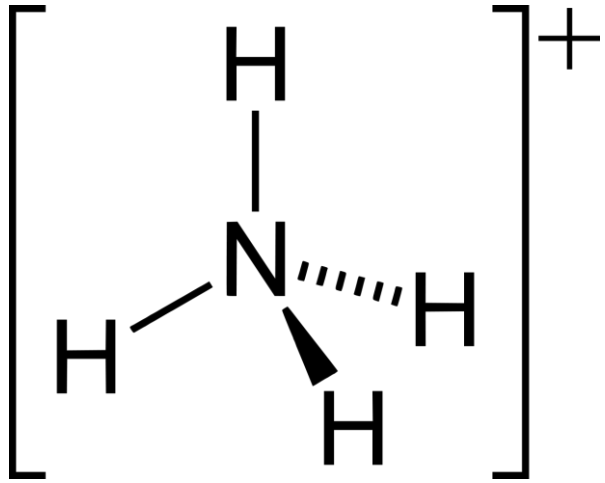
The RCD office is open if you need assistance with farm reporting. Please call for a farm reporting appointment. Office appointments will begin on December 1st.

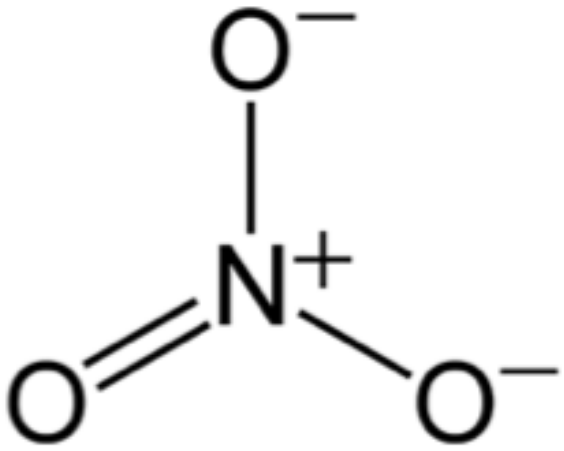
Contact Martha at (707) 678-1655 x103

NITROGEN MANAGEMENT

Amy King – Solano RCD

How does soil moisture affect nitrogen cycling and crop uptake?

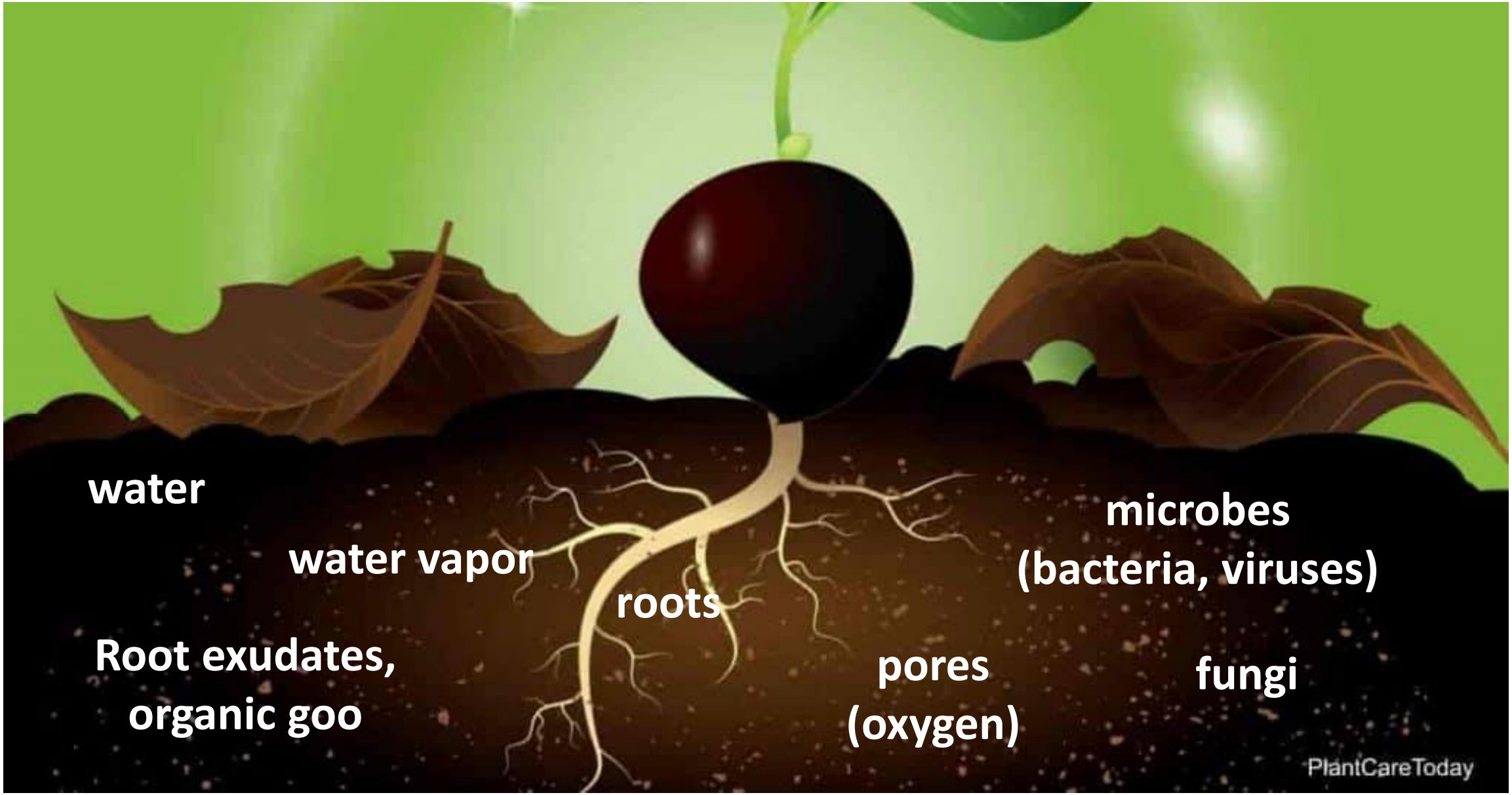


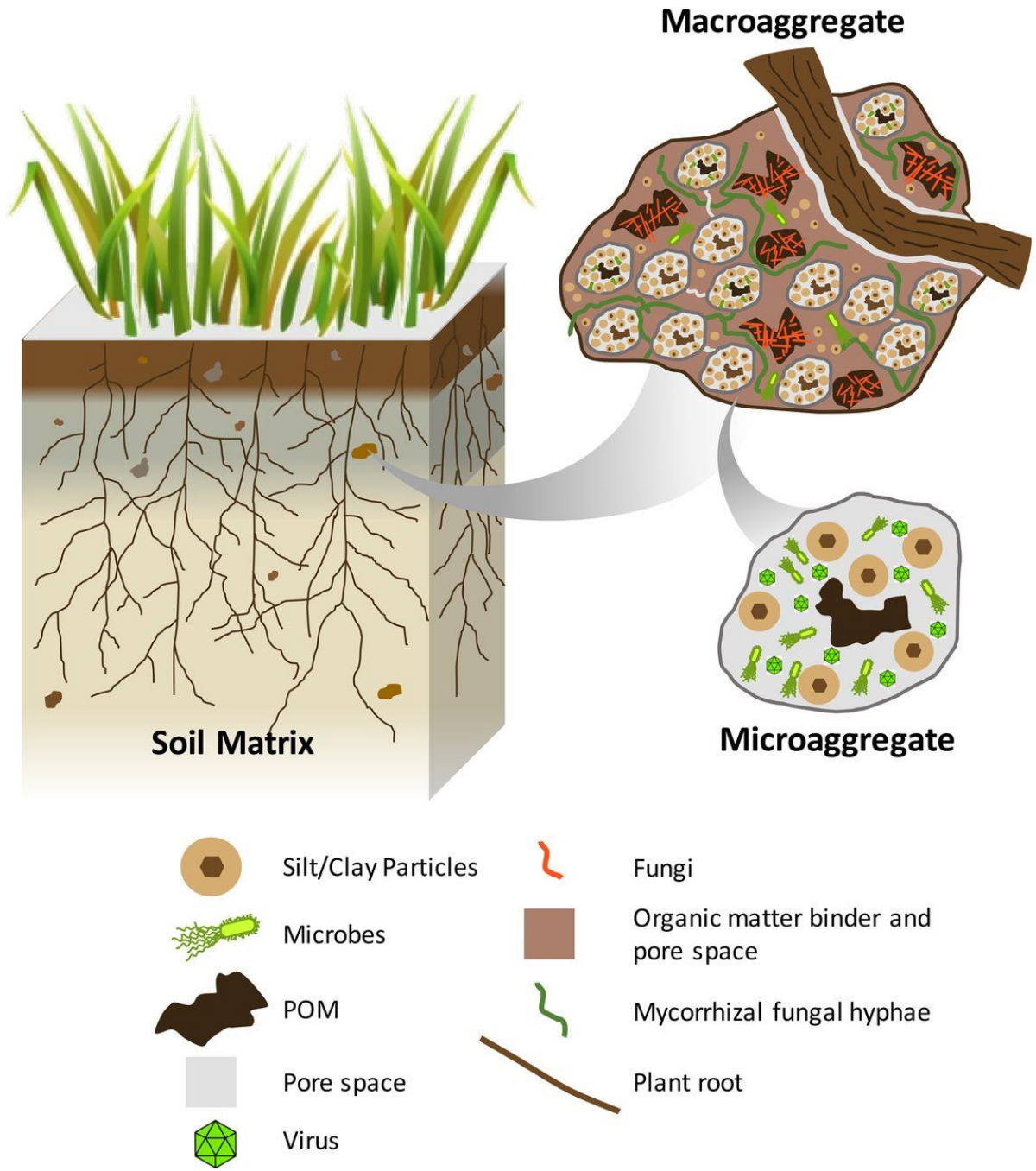


SOLANO Resource Conservation District

Amy King
Watershed Project Manager
Solano RCD

The sub-surface world

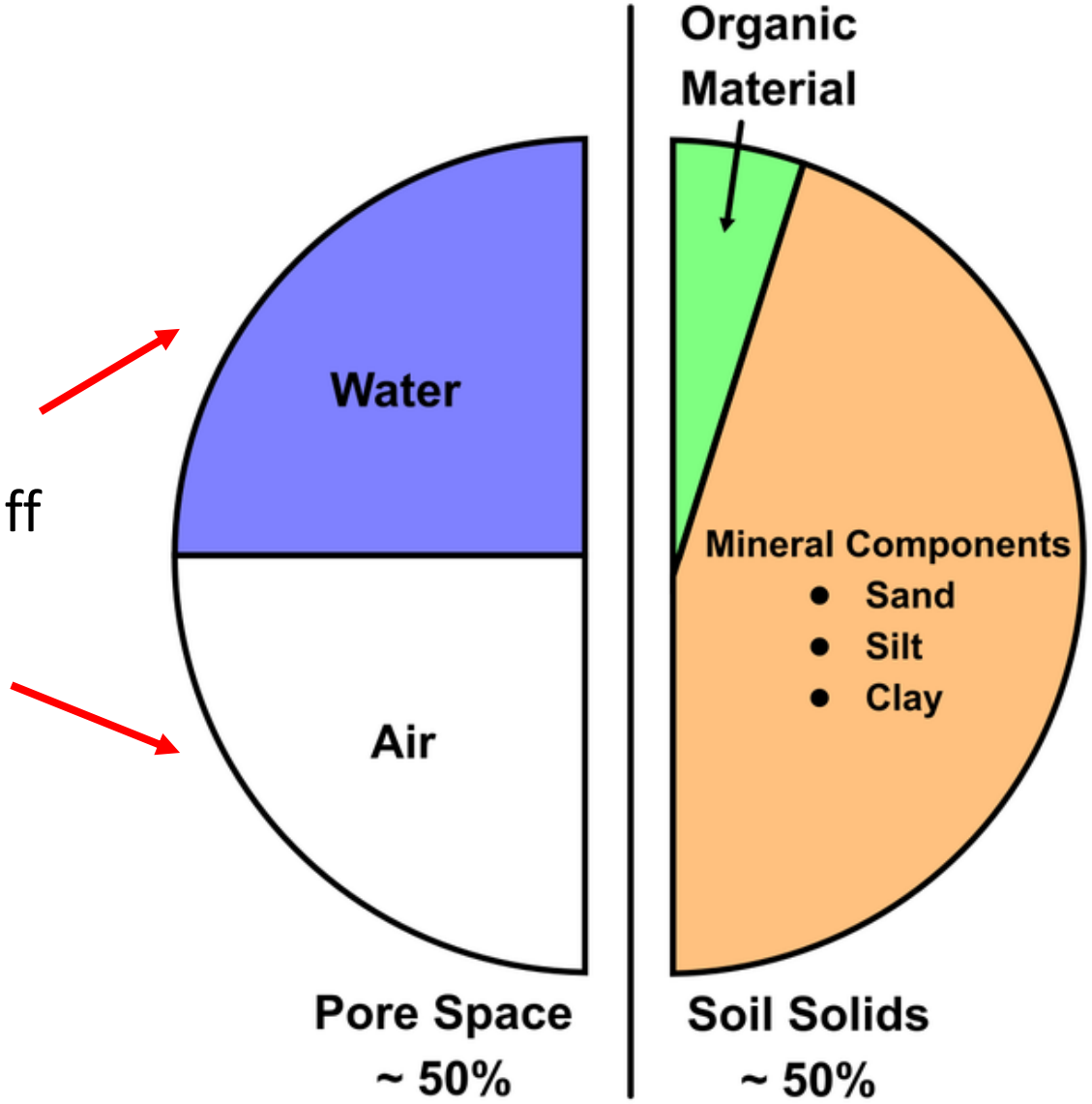


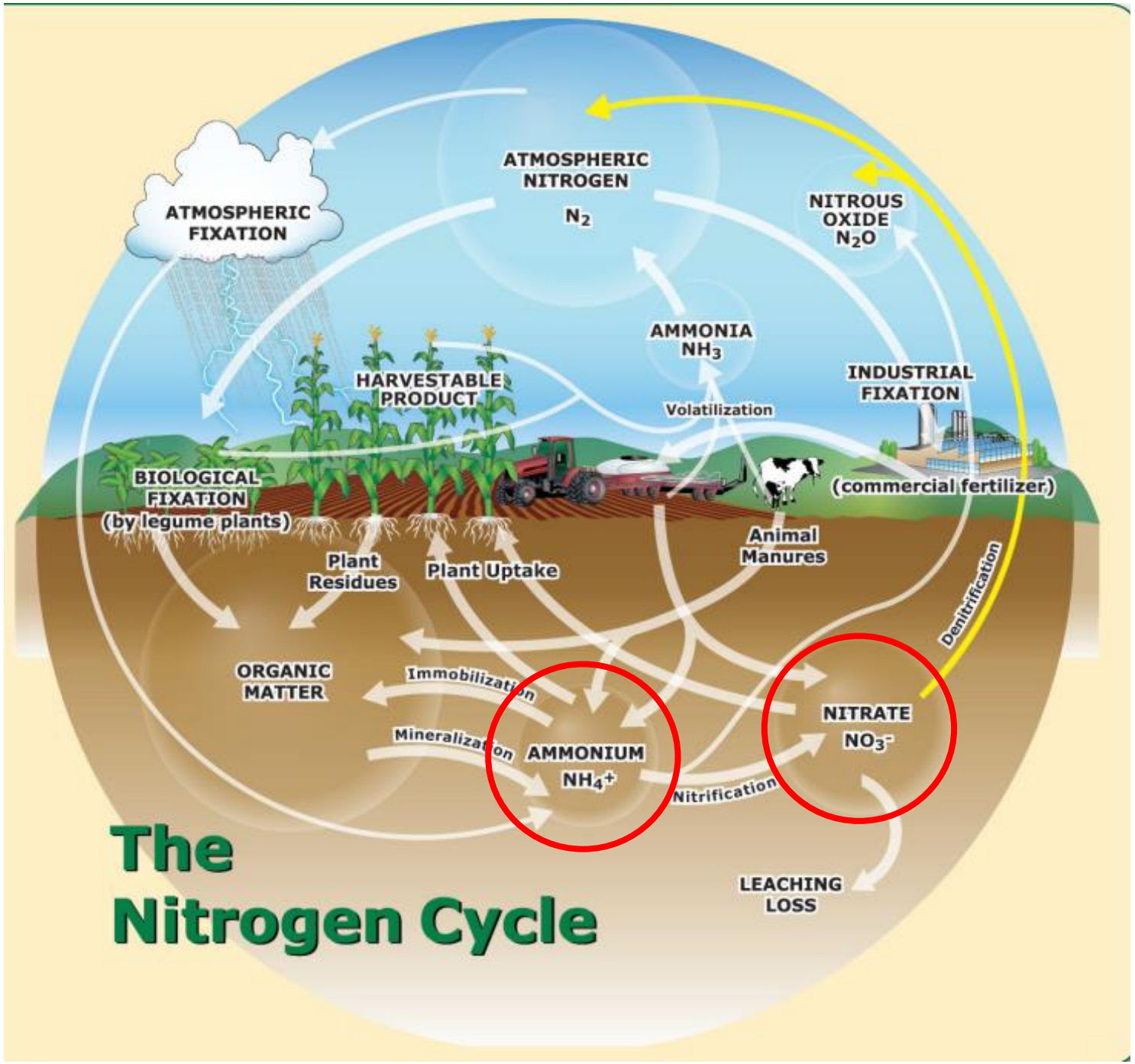


How soils aggregate determines the way in which water, temperature and air (oxygen) will regulate soil processes, like nitrogen cycling

Components of Soil

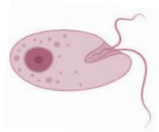
Some interesting stuff goes on over here!

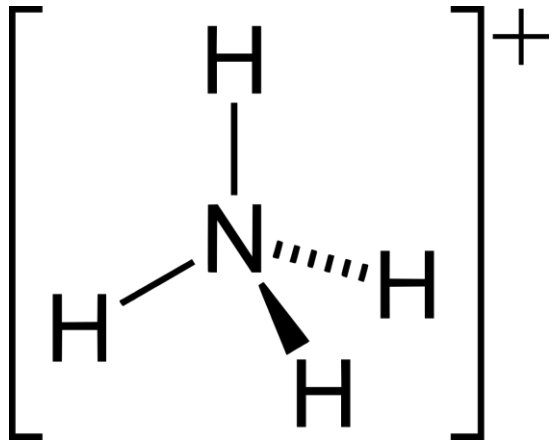


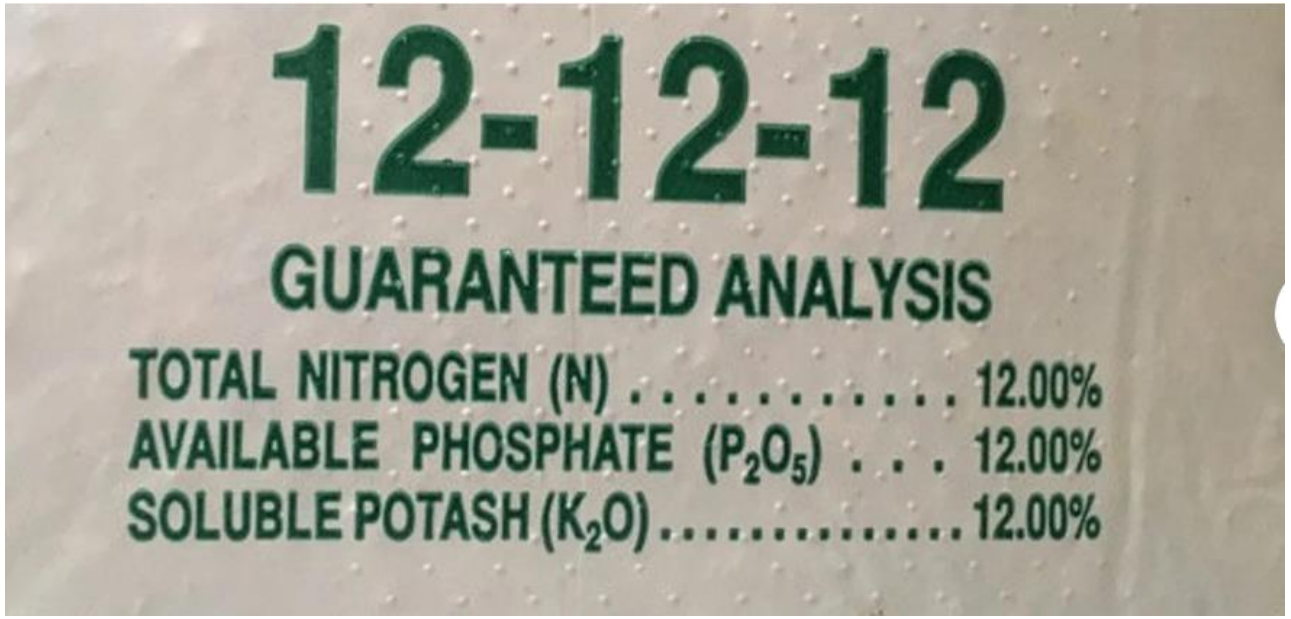

ATMOSPHERIC FIXATION
ATMOSPHERIC NITROGEN
N_2
NITROUS OXIDE
N_2O
AMMONIA
NH_3
HARVESTABLE PRODUCT
Volatilization
INDUSTRIAL FIXATION
(commercial fertilizer)
BIOLOGICAL FIXATION
(by legume plants)
Plant Residues
Plant Uptake
Animal Manures
Denitrification
ORGANIC MATTER
Immobilization
Mineralization
AMMONIUM
NH_4^+
NITRATE
NO_3^-
Nitrification
LEACHING LOSS
The Nitrogen Cycle

We get ammonium from:

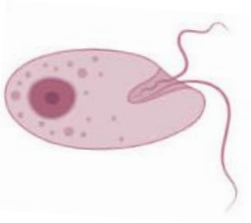
- Chemical fertilizer (12-12-12, UAN, anhydrous ammonia, etc.)
- Mineralized organic matter (leaf litter, compost, dead organisms, manure, N-fixing nodules)







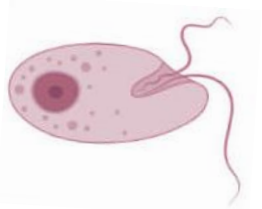
In an aerated soil environment, ammonium can:



- Become nitrate (nitrification)
- Hang out on a soil particle
- Be taken up by plant roots
- Volatilize as ammonia gas through soil pores
- Be consumed by soil microbes

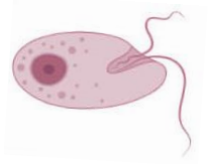
In an anaerobic soil environment, ammonium can:

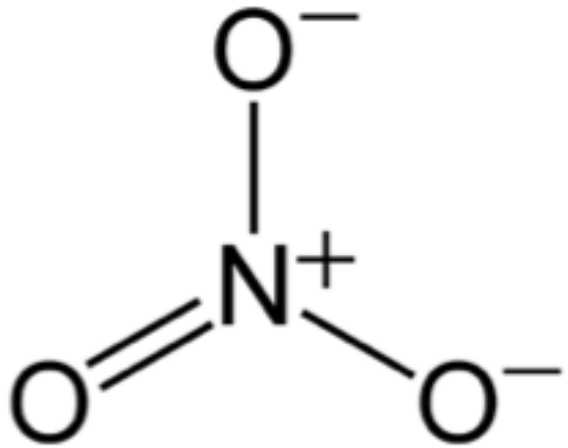
- Oxidize as ammonia gas through soil pores



We get nitrate from:

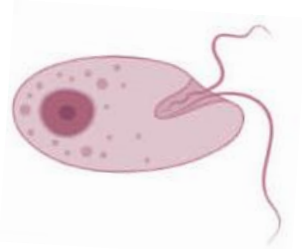
- Chemical fertilizer (UAN, potassium nitrate, etc.)
- Mineralized organic matter (leaf litter, compost, dead organisms, manure, N-fixing nodules) that became ammonium and is then converted to nitrate (nitrification)





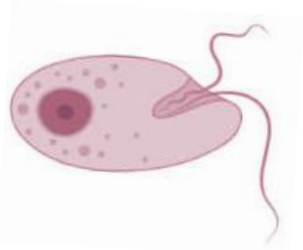
In an aerated soil environment, nitrate can:

- Dissolve into the soil water solution
- Be taken up by plant roots
- Be consumed by soil microbes



In an anaerobic soil environment, nitrate can:

- Be converted to nitrous oxide (denitrification)



Nitrous oxide – a powerful greenhouse gas

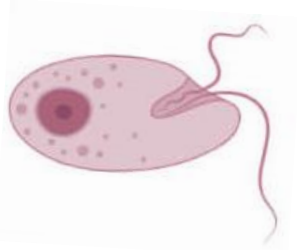
Greenhouse gas	Global warming potential (in CO_2 equivalents)	Agricultural source
CO_2	1	Combustion, soil respiration
CH_4	25	Manure management, enteric fermentation
N_2O	298	Manure, soil respiration, fertilizer

- The agriculture and forestry sectors contribute approximately 24% of global greenhouse gas emissions.
- Microbial metabolism of inorganic fertilizers accounts for the majority of global N_2O emissions.
- In the US, around 9% of our emissions come from animal and crop agriculture.
- Farmed land has great potential to sequester carbon and mitigate climate change, but it can also reduce emissions.

What do the plants like?

- Anything they can get for free! (or really, really cheap)
- Ammonium is a little cheaper than nitrate*
- Preference for one or the other is very species specific, and plants can adapt mid-season
- For most crops, either form of N is awesome and easily taken up

** Which means microbes quickly grab it up!*



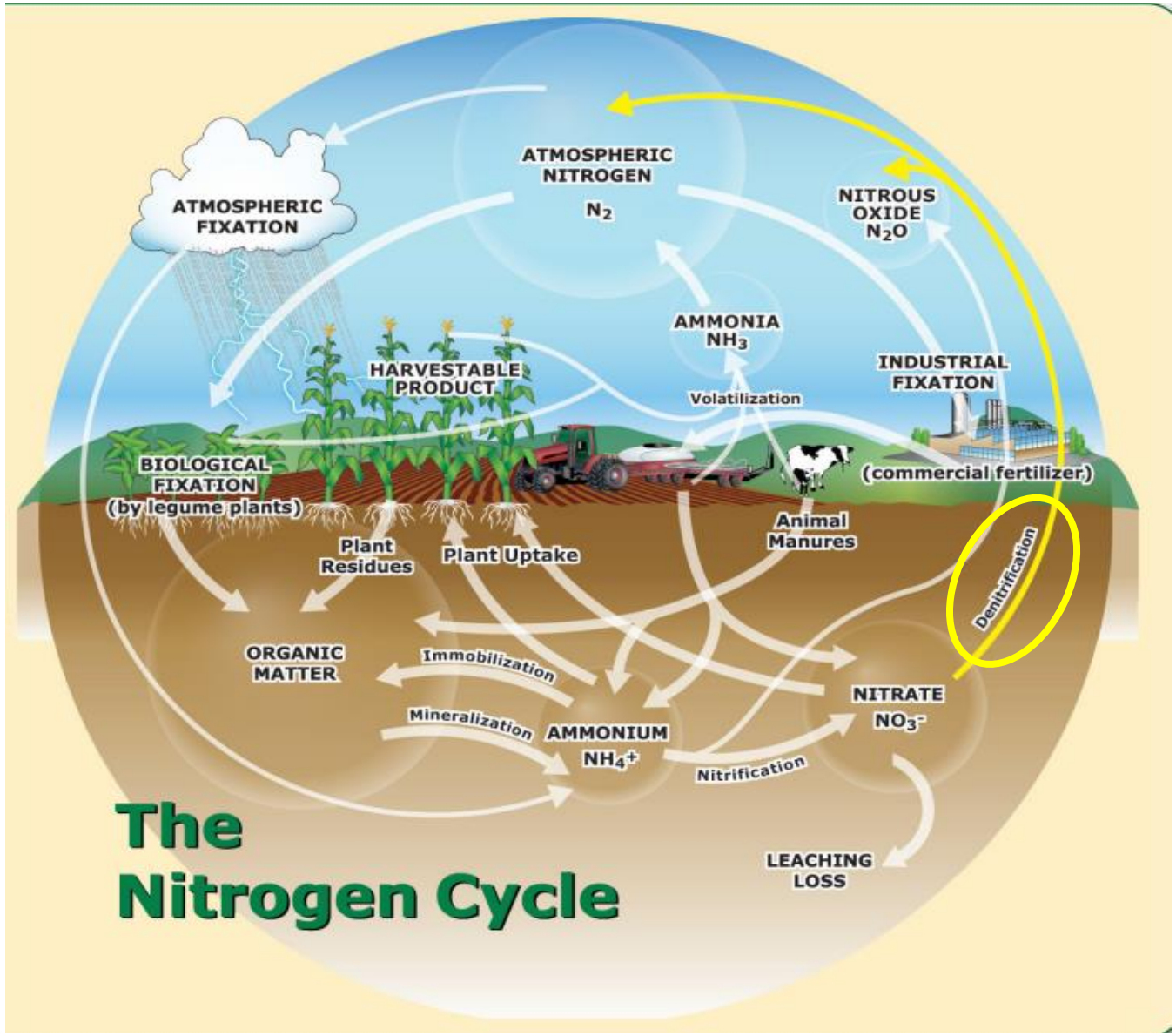
Some labs are looking into crop breeding to favor ammonium uptake:

A "more ammonium solution" to mitigate nitrogen pollution and boost crop yields

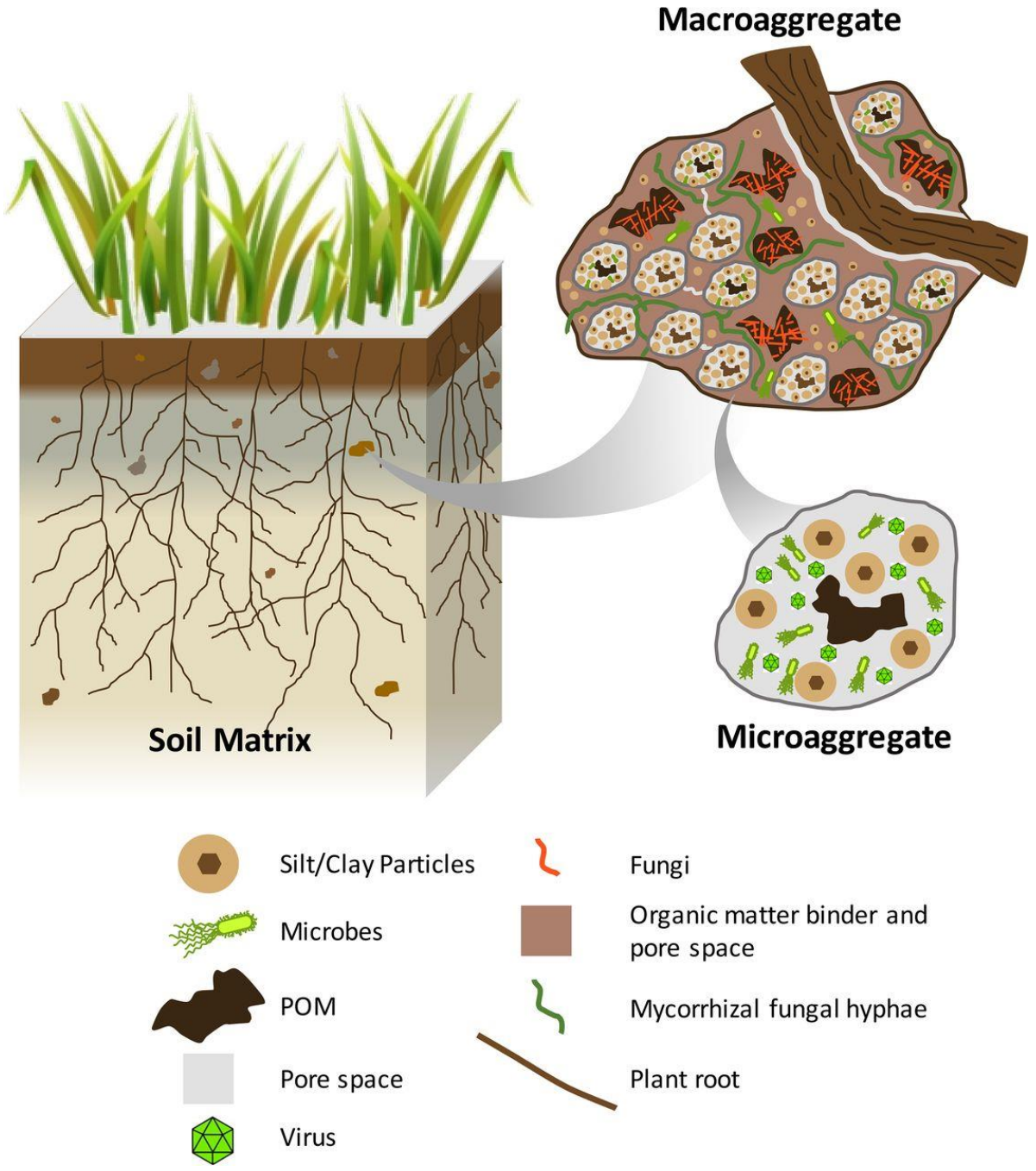
G. V. Subbarao[a,1] and Timothy D. Searchinger[b,1]

PNAS 2021, Vol 18.

Aerobic and anaerobic processes in the soil



All of these processes are happening simultaneously in the root zone, so the NET balance is what we notice crops responding to



Questions or suggestions welcomed!

Amy King
Solano Resource Conservation District
Watershed Project Manager
530-848-3551
Amy.King@solanorcd.org

1170 N. Lincoln Street, Suite 110
Dixon, CA 95620

SOLANO
Resource
Conservation
District

WATER MANAGEMENT AND PESTICIDE DISPOSAL

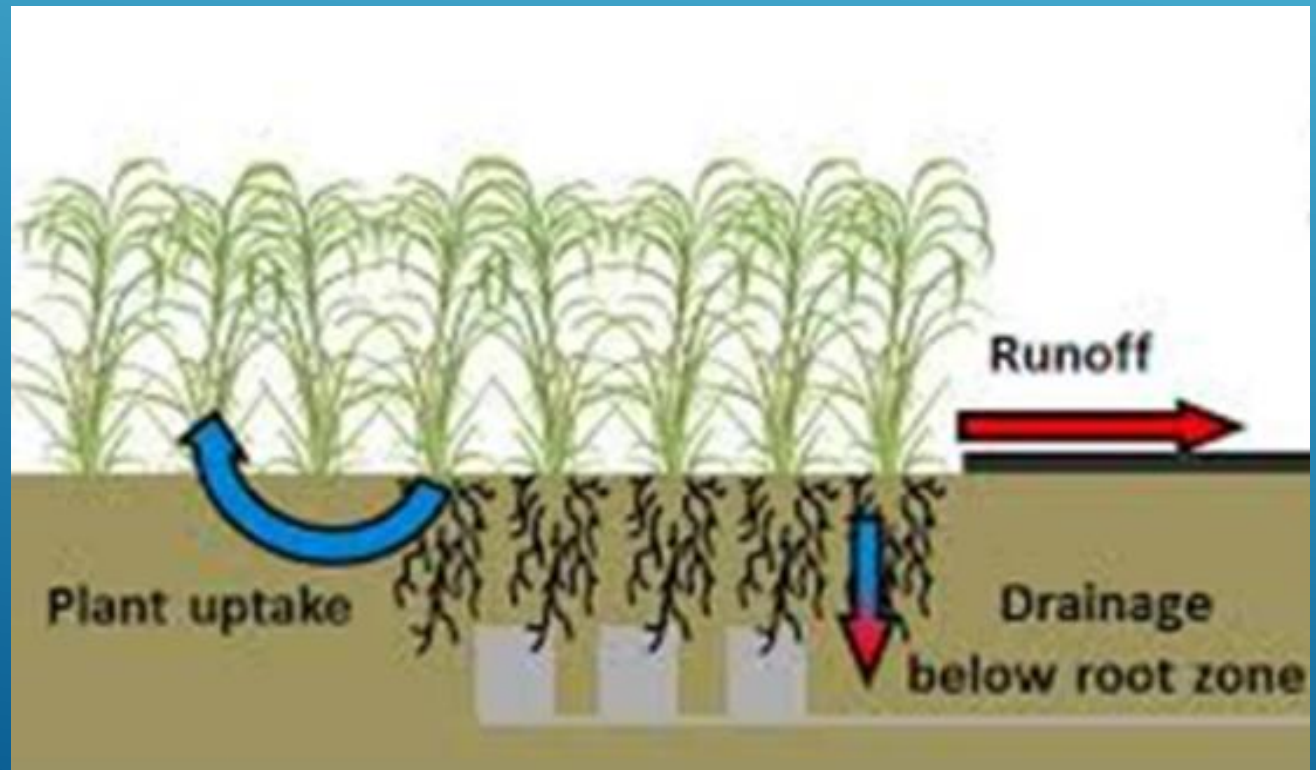
Kevin Young-Lai – Solano RCD

AG WATER EFFICIENCY PROGRAM

Kevin Young-Lai
Assistant Project Manager
October 27, 2022

IRRIGATION AND NITROGEN MANAGEMENT

- Successful nitrogen management depends on efficient irrigation management
  - Excess applied water will cause nitrogen runoff or leaching to ground waters



IRRIGATION EFFICIENCY AND DISTRIBUTION UNIFORMITY

- Irrigation Efficiency:

  A measure of how well applied water matches crop demand

- Distribution Uniformity:

  A measure of how evenly water is applied to the field

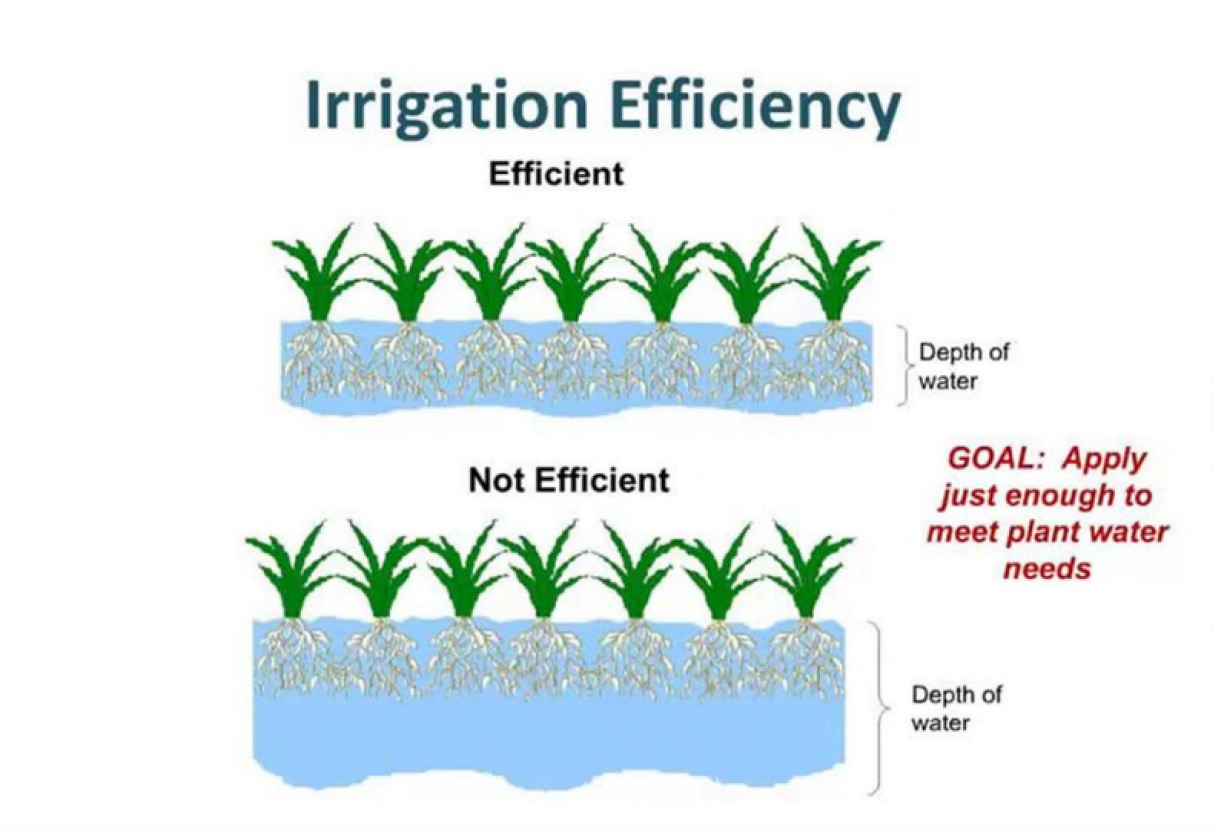
Both Impact:

- water demand
- energy demand
- nitrogen use efficiency
- uniform crop production and health

IRRIGATION EFFICIENCY (IE)

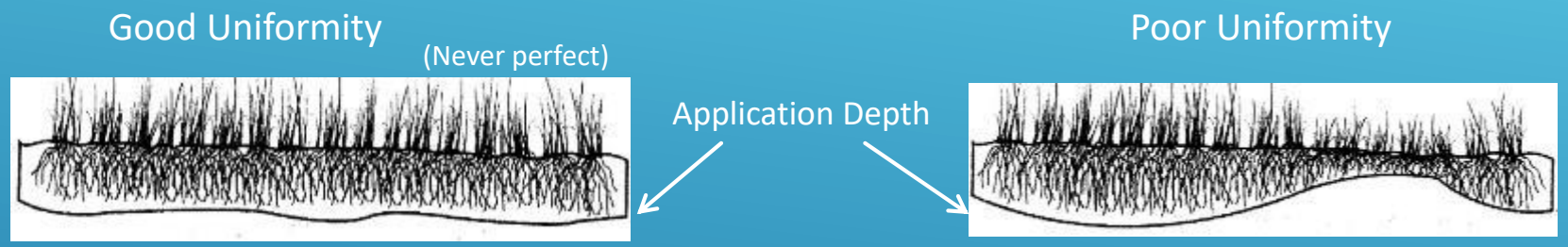
How well you—the irrigator—applies the correct amount of water to satisfy crop water use

If all the applied water is used by the crop IE = 100%



DISTRIBUTION UNIFORMITY (DU)

A measure of how evenly water is applied to the field.



- Poor uniformity means that portions of the field are getting less water than others.
  - Causes poor plant performance due to water logging and nitrate leaching or plant water stress

IRRIGATION EFFICIENCY AND DISTRIBUTION UNIFORMITY

- Good Irrigation Efficiency

  Presuming we estimate crop water use and apply that amount of irrigation without deep percolation or runoff that is not recycled.

- Distribution Uniformity

  The **distribution uniformity** is often calculated when performing an **irrigation** audit.

  Measure flows or pressures at the emitters or sprinklers

  DU = Ratio of lowest quartile to population average

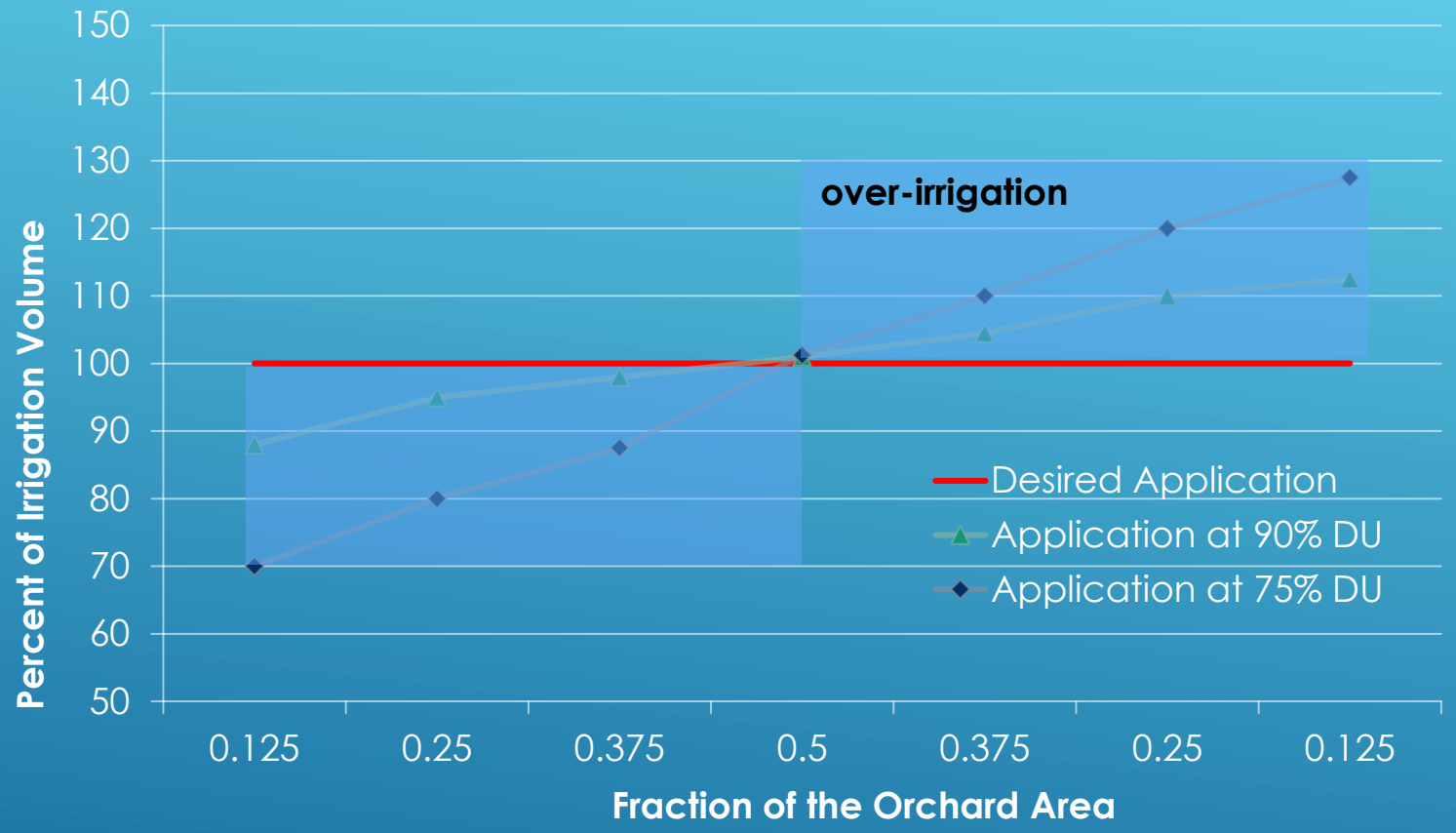
IRRIGATION EFFICIENCY

- The drier the soil the higher the reading
- Advantages
  - Relatively inexpensive and reusable
  - Can interface with data loggers
- Disadvantages
  - Require maintenance
  - Tensiometers often break suction under dry soil conditions
  - Readings are not consistent across soil textural classes

Electrical Resistance Blocks

Tensiometer

DISTRIBUTION UNIFORMITY

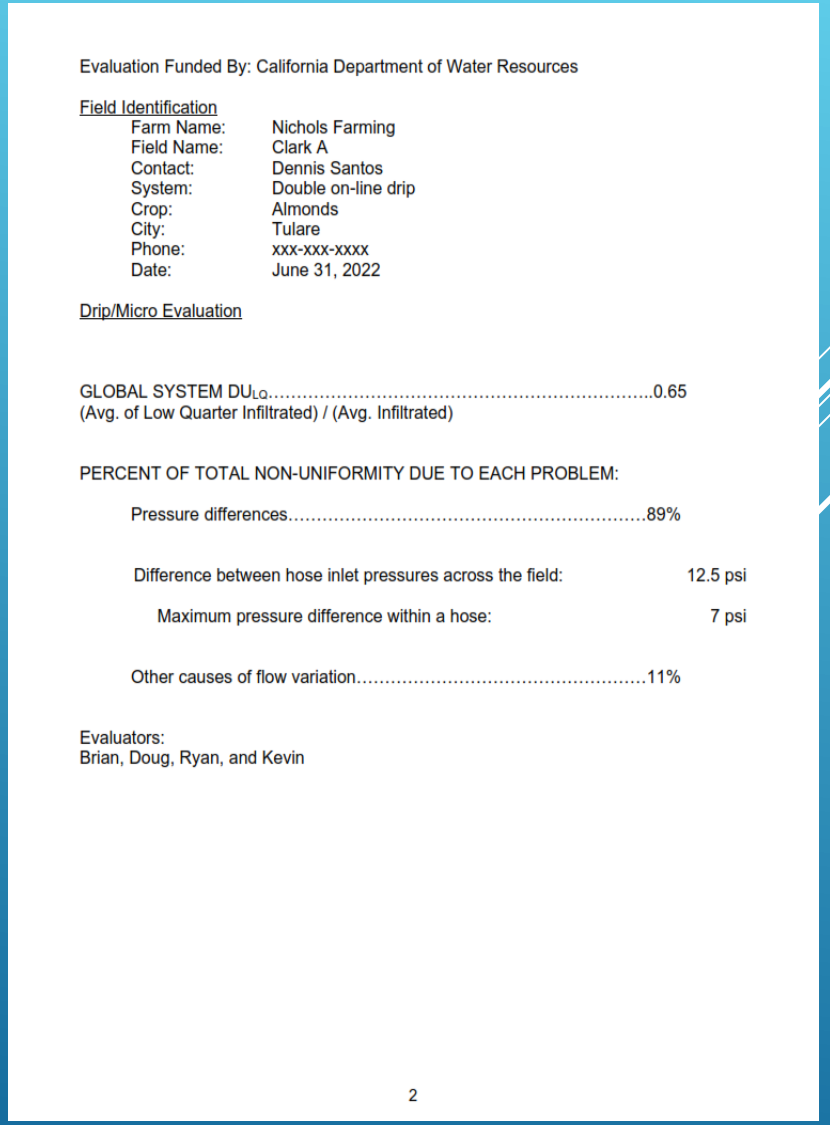


½ half the area is over irrigated and ½ is under irrigated from the target amount

At the extreme 0.90 DU is about 11% over and under irrigated
At 0.75 DU that amount is about 30%

USING A DISTRIBUTION UNIFORMITY (DU) TEST RESULTS

- The solution lies in improving DU to a point where there is minimal difference in the over and under-irrigation levels of the field. Not increase water application amounts.
- A DU of about 90% is ideal, as research has shown that trees are able to produce optimally with about 90% of full irrigation.
- Fields with lower DU should be analyzed to determine the problem and solutions implemented to improve DU.



Evaluation Funded By: California Department of Water Resources

Field Identification

Farm Name:	Nichols Farming
Field Name:	Clark A
Contact:	Dennis Santos
System:	Double on-line drip
Crop:	Almonds
City:	Tulare
Phone:	xxx-xxx-xxxx
Date:	June 31, 2022

Drip/Micro Evaluation

GLOBAL SYSTEM DU_{LQ}.....0.65
(Avg. of Low Quarter Infiltrated) / (Avg. Infiltrated)

PERCENT OF TOTAL NON-UNIFORMITY DUE TO EACH PROBLEM:

Pressure differences.....89%

Difference between hose inlet pressures across the field: 12.5 psi

Maximum pressure difference within a hose: 7 psi

Other causes of flow variation.....11%

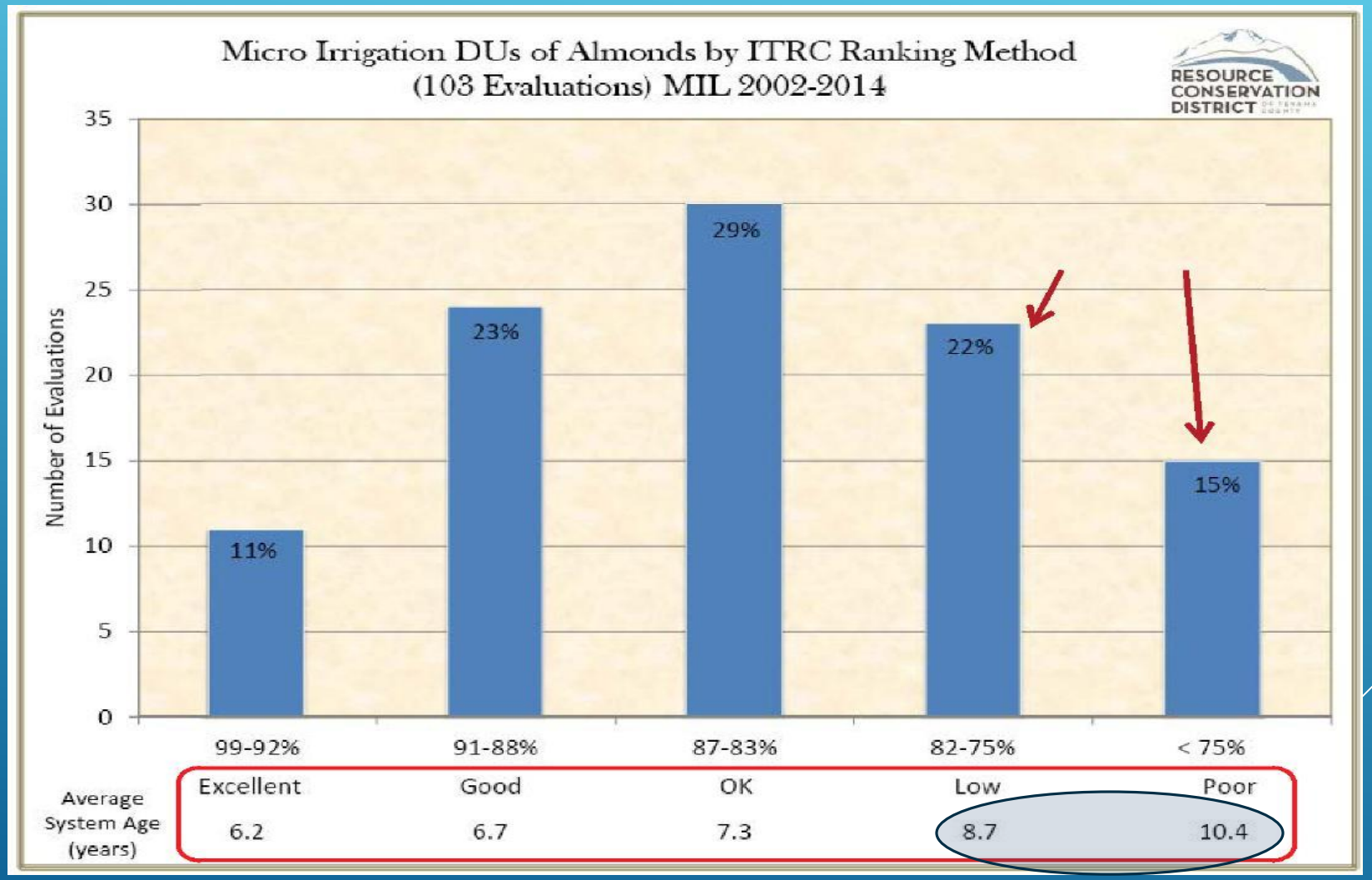
Evaluators:
Brian, Doug, Ryan, and Kevin

2

PRESSURIZED IRRIGATION DESIGN
IMPROVEMENTS

- Use appropriate pressure regulators, filters, and emitters for system
- Use pressure-compensating (PC) drippers, microsprinklers, and sprinklers when pressure variations occur
  - Provide nearly constant discharge rate across a range of operating pressures
- Consider pipe sizing and how that affects pressures at emitter due to friction losses

PERFORMANCE TENDS TO DECLINE WITH SYSTEM AGE
THE SOLUTION: SYSTEM MAINTENANCE



IRRIGATION SYSTEM MAINTENANCE
PRESSURIZED SYSTEMS

- Clean and flush filters, mainlines, submains and lateral lines regularly
- Walk the field and monitor for leaks and breaks frequently
- Check emitters for biological and chemical clogging at least twice per season

PUMP EFFICIENCY TEST

What is a pump test?

- A pump test measures various aspects of the pump's operation and provides an estimation of the overall efficiency of the pump and cost of running it under *test conditions.*

How often should I test my pump and use the data from a pump test?

- A pump should be tested every 1-3 years depending on the annual usage and severity of operating conditions. While booster pumps being supplied with clean water should be tested once very 2-3 years.
- When comparing the results of the pump test and original pump's performance curve, it will show if a pump adjustment or repair is needed.

USING DRONES FOR AG WATER EFFICIENCY

PLATFORMS

Multi-rotor Copters

- Generally 18-25 minute flight time with
- Vertical take off and landing
- Typically < 2 pound payload
- Can cover > 50 acres per flight

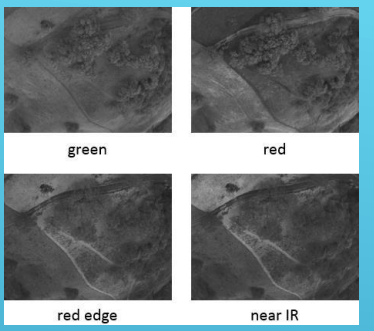
Fixed-Wing

- Longer flight time (> 40 min)
- Moves faster and can cover > 100-300 acres per flight
- Typically can carry more payload
- Harder to replicate your flight plan

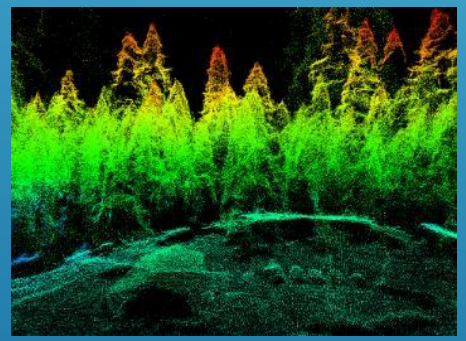
PAYLOADS

RGB

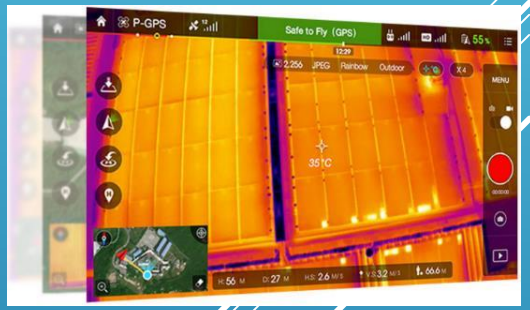
Multispectral



LiDAR

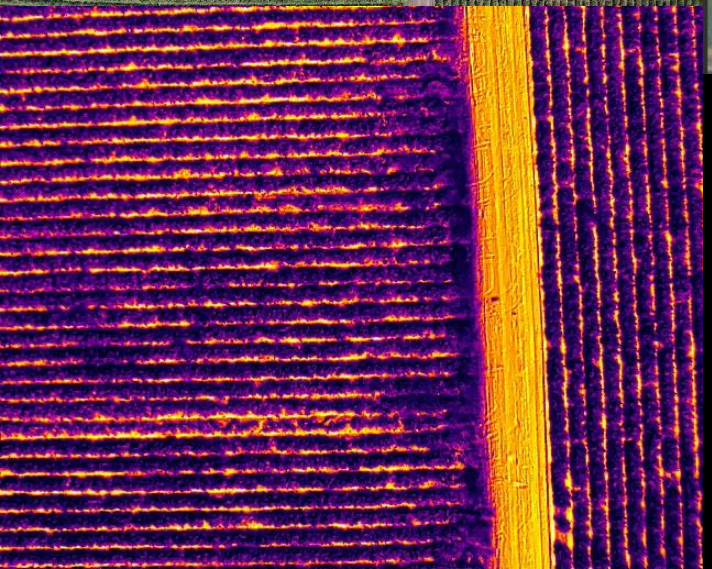


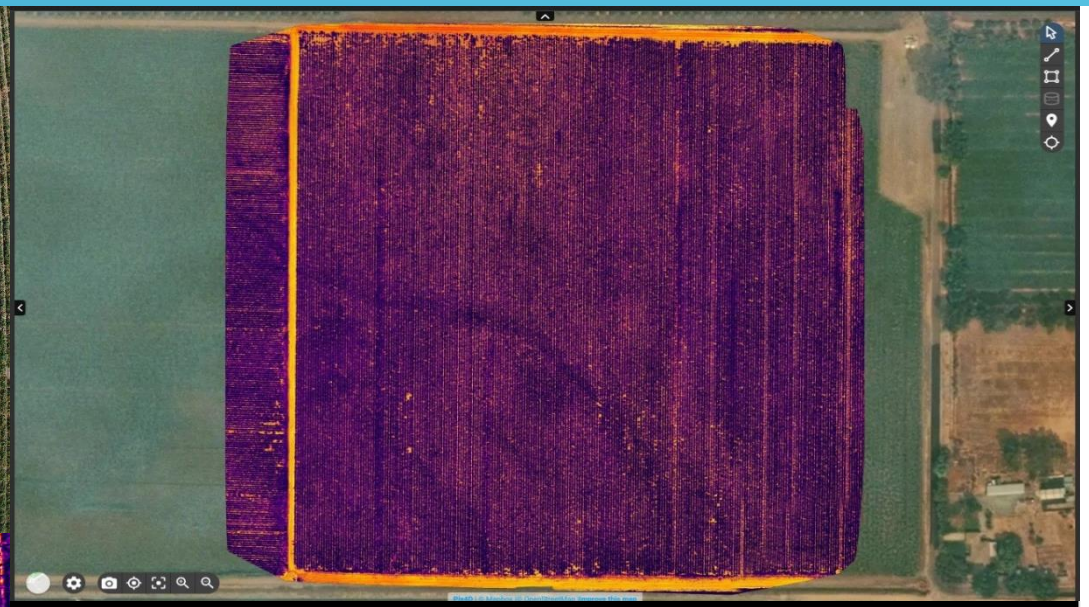
Thermal

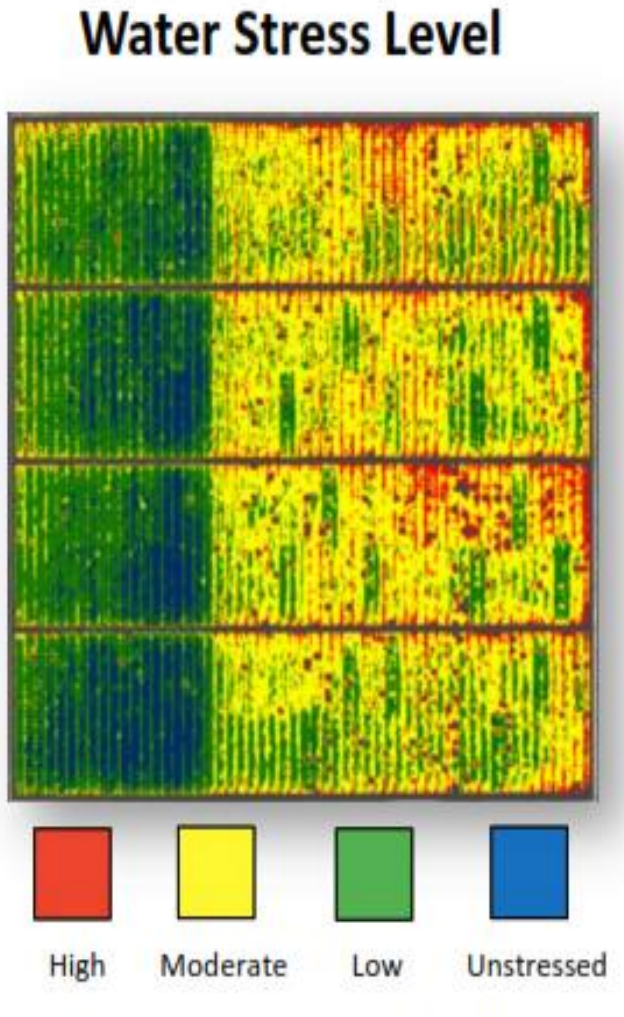


Hyperspectral

THERMAL IMAGERY- WATER USE EFFICIENCY



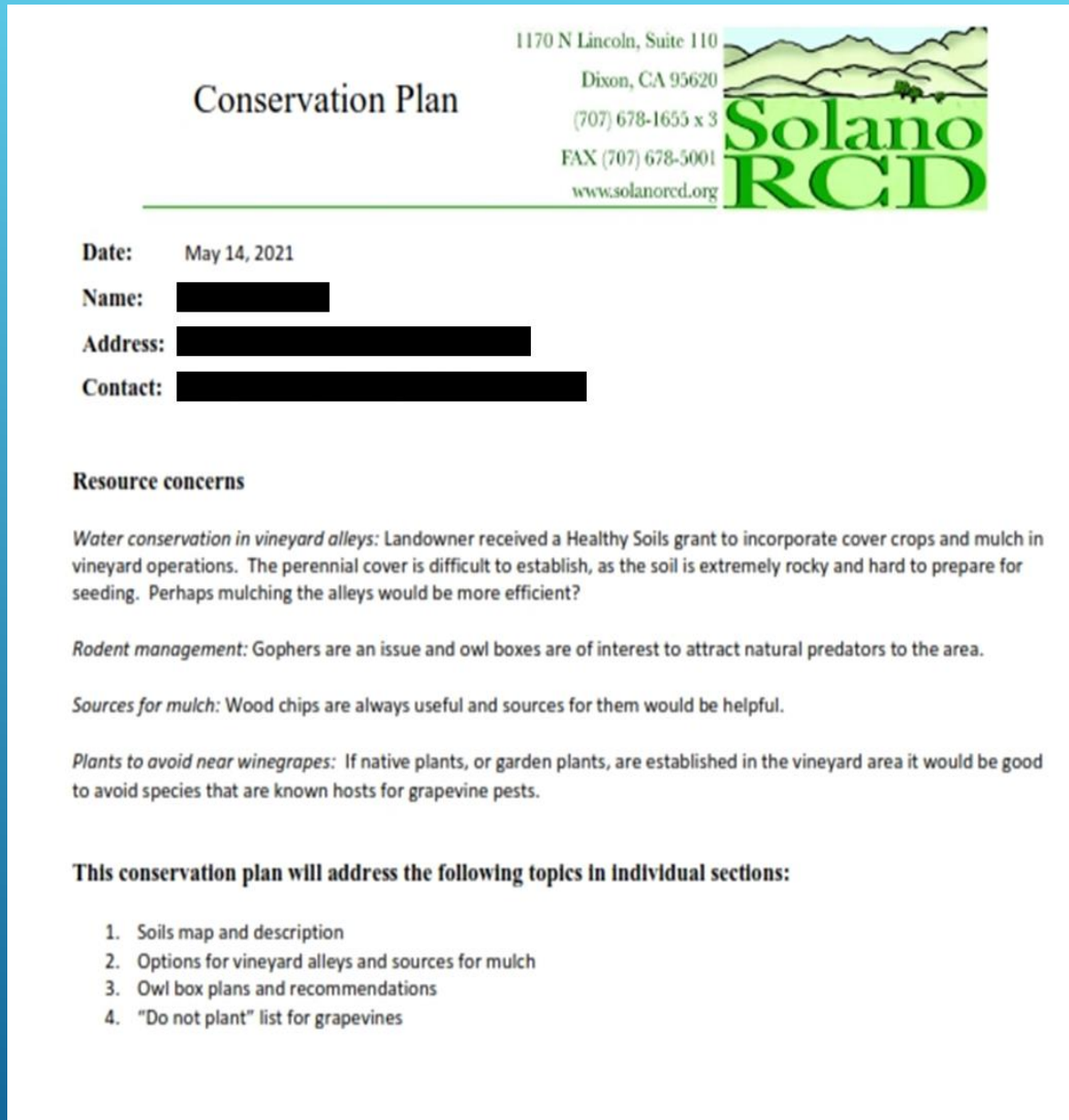




TECHNICAL ASSISTANCE FOR PLANNING ON-FARM PRACTICES

Solano RCD staff can brainstorm with you about:

- Irrigation issues, improvements, efficiency tests
- Carbon farm planning
- Preventing soil erosion
- Applying for financial assistance programs to implement your ideas:
  - USDA NRCS
  - CDFA Healthy Soils
  - Other State/Federal funds
- Cover crops, hedgerows, windbreaks, wildlife habitat, pollinator projects, etc!



1170 N Lincoln, Suite 110
Dixon, CA 95620
(707) 678-1655 x 3
FAX (707) 678-5001
www.solanorcd.org

Solano RCD

Conservation Plan

Date: May 14, 2021

Name: [redacted]

Address: [redacted]

Contact: [redacted]

Resource concerns

Water conservation in vineyard alleys: Landowner received a Healthy Soils grant to incorporate cover crops and mulch in vineyard operations. The perennial cover is difficult to establish, as the soil is extremely rocky and hard to prepare for seeding. Perhaps mulching the alleys would be more efficient?

Rodent management: Gophers are an issue and owl boxes are of interest to attract natural predators to the area.

Sources for mulch: Wood chips are always useful and sources for them would be helpful.

Plants to avoid near winegrapes: If native plants, or garden plants, are established in the vineyard area it would be good to avoid species that are known hosts for grapevine pests.

This conservation plan will address the following topics in individual sections:

1. Soils map and description
2. Options for vineyard alleys and sources for mulch
3. Owl box plans and recommendations
4. "Do not plant" list for grapevines

PESTICIDE DISPOSAL

Kevin Young-Lai
Assistant Project Manager
October 27th, 2022

QUANTITY GENERATORS CATEGORIES

- **Small Quantity Generators (SQG)**
  - Produce more than 220 pounds or 27 gallons but less than 2,200 pounds or 270 gallons of waste or less than 2 pounds of acutely hazardous waste per month.
  - The accumulation start date is the date waste is first placed in the accumulation container or tank.
  - Waste may be stored on site up to 180 days or up to 270 days if the distance to the treatment or disposal facility is more than 200 miles.
  - *Conditionally Exempt Small Quantity Generators (CESQG)*
    - Under federal hazardous waste management programs ***ONLY***.
      - California did not adopt the conditional exemption for smaller quantity generators
    - Generates less than 220 pounds or 27 gallons per month.
    - regulated as SQGs
- **Large Quantity Generators (LQG)**
  - Produce more than 2,200 pounds, or 270 gallons per month of all hazardous waste generated on site.
  - The accumulation start date is when the first waste is placed in the accumulation container or tank.
  - There is a 90 day storage time limit.

WHO OFFERS HAZARDOUS WASTE DISPOSAL SERVICES?

If you fit within the Conditionally Exempt Small Quantity Generators (CESQG) category, you can go to these sites:

- ***Recology Vacaville Solano Recycling Facility Household Hazardous Waste Facility***
  - Supports Dixon and Vacaville Residents
  - Every Saturday from 9:00 AM – 3:00 PM
  - ***MUST*** make an appointment before showing up
    - ACT Enviro
      - Business Line: Carmen Zuniga 1-866-333-9222, option 4
    - Online appointment request portal: https://www.actenviro.com/hhw-small-business-quote/
- ***Republic Services Household Hazardous Waste Facility***
  - Supports Fairfield and Suisun Residents
  - Every 2nd and 4th Saturday of each month
  - ***MUST*** make an appointment before showing up
    - Call: (707) 437-8971
- ***Due to US Department of Transportation regulations, the facility can only accept up to 15 gal. or 125 lbs. of hazardous material in 5 gallon containers or smaller per visit.***

WHO OFFERS HAZARDOUS WASTE DISPOSAL SERVICES?

If you fit within the Small Quantity Generators (SQG) or Large Quantity Generators (LQG) category, you can call these companies:

- Act Enviro
  - (408) 548-5050
- Clean Earth
  - (866) 303-7344
- Clean Harbor
  - (800) 444-4244
- Ramos
  - (800) 456-7745

SUGGESTIONS AND TIPS

- **EPA ID number**
  - This EPA ID number will be tied to a specific address.
    - If a company has three facilities operating on the same piece of property, only one EPA ID number is required.
    - However, if a company has three facilities operating on separate non-contiguous properties, then three separate and distinct EPA ID numbers must be used.
  - Temporary Federal or State EPA ID's can be setup
    - Valid for 90 days
    - Hazardous waste companies can assist you with this
- **Unknown chemical testing**
  - In-house through the hazardous waste company.
  - Third party testing laboratory.
    - California Laboratory Services: (800) 638-7301
    - Communication of specific tests is key!

PESTICIDE DISPOSAL PROGRAM

- ***FREE*** disposal of legacy pesticides/herbicides
  - Currently, we will work with you individually for disposal of such hazardous waste.
- Pilot program will end when grant funds are depleted, or on September 30th, 2024.
- Pesticide disposal will be set up by appointment only.

Partners: Solano County Resource Management, Solano Ag Commissioner's Office, Dixon Resource Conservation District, and Cal Recycle.

SOLANO Resource Conservation District

DIXON RESOURCE CONSERVATION DISTRICT

SOLANO COUNTY 1850

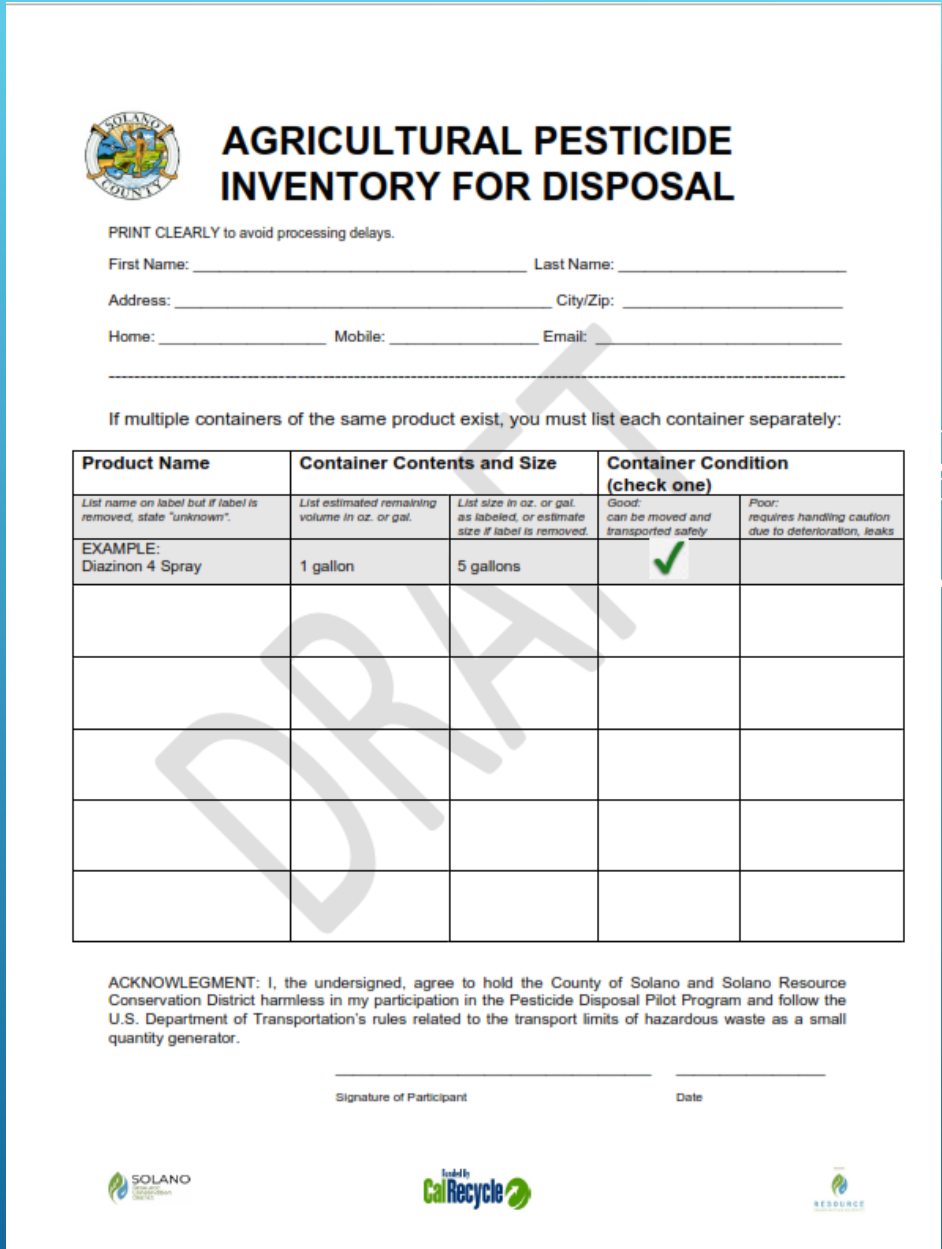
Funded By CalRecycle

INFORMATION NEEDED FOR SIGN-UP?

- Name
- Contact information
  - Phone number
  - Email address
- List of what legacy pesticide you would like to have disposed of.
  - Pesticide/herbicide name
  - Quantity of the legacy pesticide

- **Kevin Young-Lai's contact information**

Solano Resource Conservation District
1170 N. Lincoln Street Suite 110
Dixon, CA 95620
Office: (707)678-1655 x 123



AGRICULTURAL PESTICIDE INVENTORY FOR DISPOSAL

PRINT CLEARLY to avoid processing delays.

First Name: _____ Last Name: _____

Address: _____ City/Zip: _____

Home: _____ Mobile: _____ Email: _____

If multiple containers of the same product exist, you must list each container separately:

Product Name	Container Contents and Size		Container Condition (check one)	
List name on label but if label is removed, state "unknown".	*List estimated remaining volume in oz. or gal.*	*List size in oz. or gal. as labeled, or estimate size if label is removed.*	*Good: can be moved and transported safely*	*Poor: requires handling caution due to deterioration, leaks*
EXAMPLE: Diazinon 4 Spray	1 gallon	5 gallons	✓	

ACKNOWLEGMENT: I, the undersigned, agree to hold the County of Solano and Solano Resource Conservation District harmless in my participation in the Pesticide Disposal Pilot Program and follow the U.S. Department of Transportation's rules related to the transport limits of hazardous waste as a small quantity generator.

_____ _____

Signature of Participant Date

DRAFT

QUESTIONS?

CONTACT INFO

SOLANO Resource Conservation District

KEVIN YOUNG-LAI
PHONE: (707)678-1655 EXT.123
EMAIL: KEVIN.YOUNG-LAI@SOLANORCD.ORG

NRCS - NATURAL RESOURCES CONSERVATION SERVICE PROGRAM

Teri Knight – District Conservationist for NRCS

THANK YOU FOR ATTENDING!

- **In-person attendees-** Do not forget to get your CEU Certificate from Martha before leaving.
- **Zoom attendees-** CEU certificates will be emailed to all participants the that signed into the chat room and had their cameras on.
- If you do not receive the certificate by the end of next week, contact Martha at 707-678-1655 x103 or martha-mckeen@dixonrcd.org

QUESTIONS AND ANSWERS