



Managing the Potential for Nitrogen to Leach to Groundwater

Growers in the Kings River Water Quality Coalition (KRWQC) have been reporting their nitrogen applied compared to the yield harvested since 2016. Growers have also been reporting on what practices they implement to improve irrigation and nitrogen efficiencies. These practices are important for reducing the potential for nitrogen to leach past the root zone and potentially contaminate groundwater. Growers can either 1) reduce the amount of water leaching, since water is how nitrate moves through the soil, or 2) reduce the amount of nitrogen being applied. There have been changes in both irrigation and nitrogen practices documented on the Irrigation and Nitrogen Management Plan Summary Reports. Most notably, approximately 179,000 acres have converted to pressurized irrigation systems reducing the amount of water applied (Figure 1).

Switching to pressurized irrigation systems is not the only practice that has changed. Table 1 shows the acreages associated with other practices newly implemented between 2020 and 2021. Growers have also been adding more nitrogen management practices to their management toolbox including doing more testing (irrigation water, soil, and tissue/petiole testing), splitting out fertilizer applications to time with plant growth demands, and implementing fertigation to deliver fertilizer more efficiently to the plant (Table 2).

Figure 1. Top 10 Crops with Changes to Pressurized Irrigation Systems.

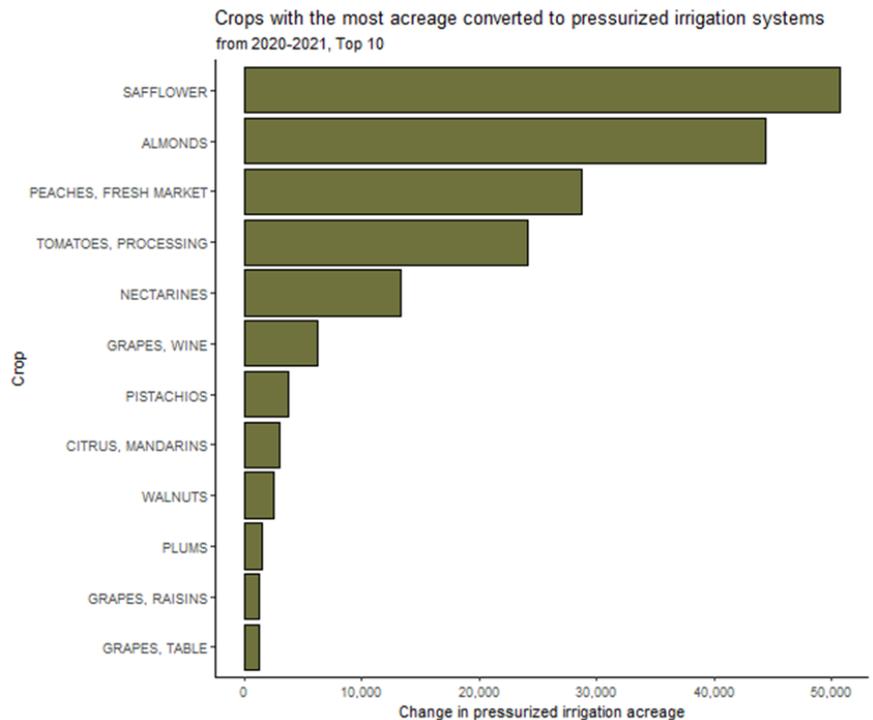


Table 1. Changes in irrigation efficiency practices year over year (YOY)

| Irrigation Efficiency Practices | 2020 Acreage | 2021 Acreage | Reported Acreage change YOY | % Change YOY |
|-------------------------------------|--------------|--------------|-----------------------------|--------------|
| Laser Leveling | 9,458 | 11,375 | 1,917 | 20% |
| Pressure Bomb | 1,004 | 1,347 | 343 | 34% |
| Soil Moisture Neutron Probe | 2,079 | 2,594 | 515 | 25% |
| Use of ET in scheduling irrigations | 7,736 | 9,600 | 1,864 | 24% |
| Use of moisture probe | 5,641 | 7,007 | 1,366 | 24% |
| Water application scheduled to need | 14,496 | 17,035 | 2,539 | 18% |

Table 2. Changes in nitrogen efficiency practices year over year (YOY)

| Irrigation Efficiency Practices | 2020 Acreage | 2021 Acreage | Reported Acreage change YOY | % Change YOY |
|--------------------------------------|--------------|--------------|-----------------------------|--------------|
| Cover Crops | 1,705 | 2,345 | 640 | 38% |
| Fertigation | 8,876 | 10,894 | 2,018 | 23% |
| Foliar N Application | 7,626 | 9,271 | 1,645 | 22% |
| Irrigation Water N Testing | 10,313 | 12,649 | 2,336 | 23% |
| Soil Testing | 11,269 | 13,421 | 2,152 | 19% |
| Split Fertilizer Applications | 12,305 | 14,352 | 2,047 | 17% |
| Tissue/Petiole Testing | 10,907 | 13,034 | 2,127 | 20% |
| Variable Rate Applications using GPS | 157 | 287 | 130 | 83% |

2023 Annual Workshop and Well Webinar Schedule

All members, or a designated representative, are required to participate in one outreach activity annually (see table). This is not Irrigation and Nitrogen Management Plan training for self-certification. Annual workshops provide program updates, the well webinar will discuss well permitting and abandonment. Registration for all workshops and webinars is available at: <https://kingsriverwqc.org/workshops/>

| Month/Date | Time | Town | Location | Type |
|------------|---------|---------|-------------------|-----------------|
| January | | | | |
| 12 | 2:00 PM | Online | Zoom | Annual Workshop |
| 19 | 9:00 AM | Hanford | Kings Fairgrounds | Annual Workshop |
| 26 | 9:00 AM | Selma | Portuguese Hall | Annual Workshop |
| 31 | 9:00 AM | Online | Zoom | Annual Workshop |
| February | | | | |
| 2 | 9:00 AM | Online | Zoom | Well Webinar |
| 8 | 9:00 AM | Easton | CPDES Hall | Annual Workshop |
| 16 | 9:00 AM | Kerman | Community Center | Annual Workshop |

Newsletter Delivery Preference: Last year, members began seeing a pop-up question when logging into the KRWQC Member Portal asking to confirm their preferred method of delivery for the newsletter. Delivery options included traditional mail, email, or not to receive a newsletter. Starting with the 2023 Spring Newsletter, KRWQC will begin using the preferred method of delivery set by each member. If you have not set your preferred method of delivery or would like to update your current preference, you can do so via your Member Portal. Members without a set preference will receive the newsletter through email.

Kings River Water Quality Coalition
P.O. Box 8259
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Important Coalition member updates enclosed

Coalition Board Profile, Mark Unruh



Provide a brief background about yourself

I was born and raised in Kingsburg, California. I grew up helping my father on the family farm growing primarily tree fruit and raisin grapes. After high school, I attended California Polytechnic University, San Luis Obispo, majoring in Agricultural Engineering. After graduation I began employment as a design engineer with MVP Hydratech, where I designed custom hydraulic and pneumatic cylinders. After my employment with MVP Hydratech, I went to work as an engineer for the Fresno Irrigation District designing canal structures and pipelines. In 2005 I began my employment as an engineer with the J. G. Boswell Company and I now serve as their Corcoran Ranch Water Department Manager.

How do you believe the Coalition can best serve its members?

I have been a member of the KRWQC Board for several years representing water entities and landowners south of Hanford and around the Corcoran area. I think of the Coalition as the “middleman” between the State and Regional Boards and individual landowners within the Tulare Lake Basin. Without the Coalition, landowners would need to individually interact with the regulating agencies. The Coalition allows those with a local knowledge to lead in the development of programs that meet the requirements of the State and Regional Boards at a reduced cost to the individual landowner.