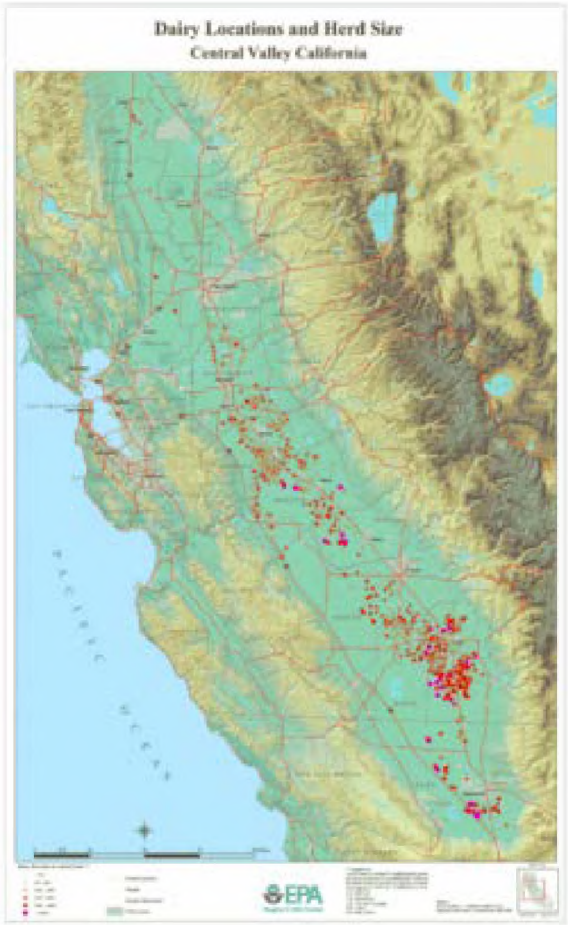
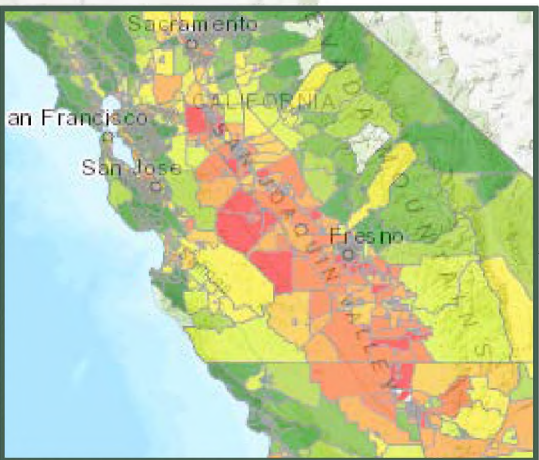
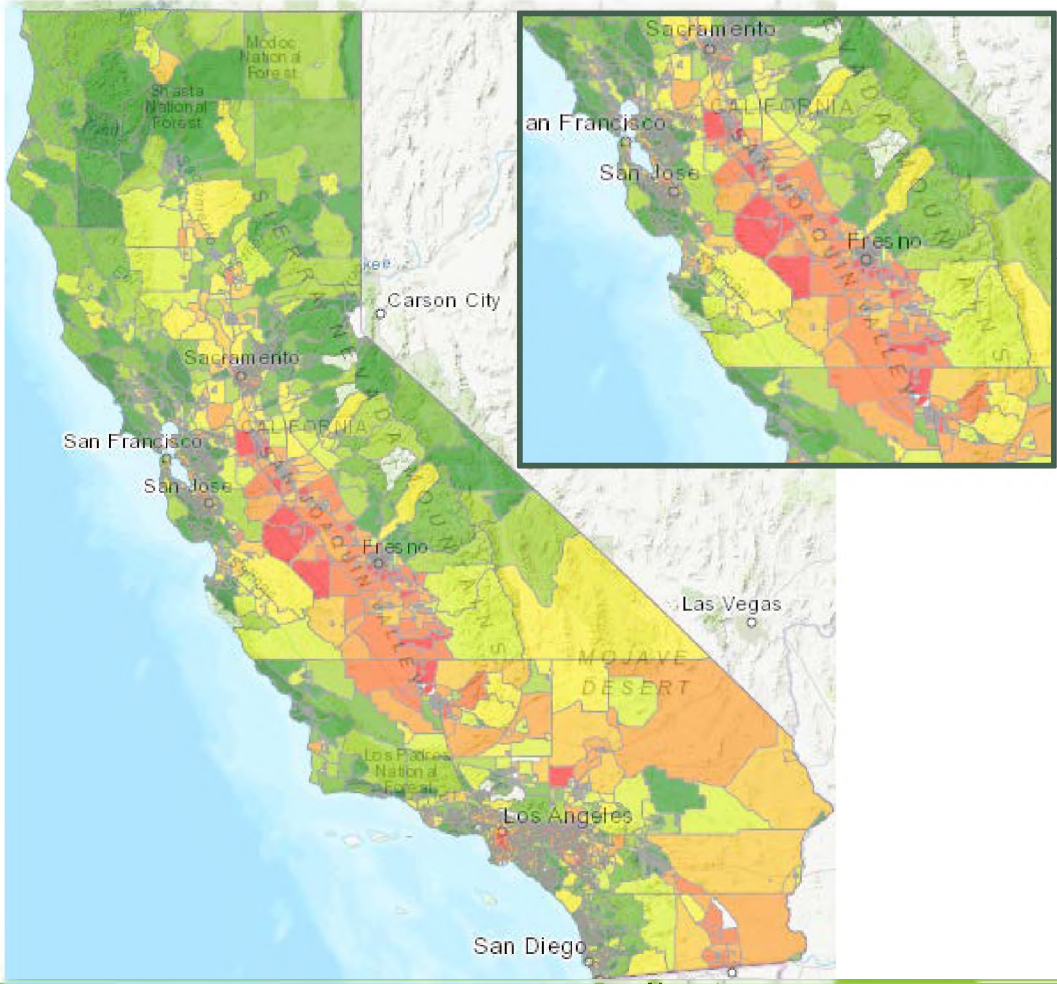


# Dairy Manure Management & Environmental Justice



---

NIKITA DARYANANI  
POLICY COORDINATOR  
OCTOBER 16, 2017



# Dairies in Environmental Justice Communities in the San Joaquin Valley

---

- SJV is home to approx 30% of the state's disadvantaged communities (DACs)
- Approximately 90% of California's dairy cows are located in the SJV.
- Disproportionate impacts to DACs

# Water Quality Impacts

---

- Run-off into surface water
- Flush systems → Leaching
  - Nitrate contamination of groundwater from dairy lagoons and application.
- Most disadvantaged communities in the SJV rely on groundwater for drinking water and cannot afford to treat this contamination.
- Nitrate contamination of drinking water can cause birth defects (“blue baby syndrome”), thyroid cancer, among others.



*Photo by Tom Frantz (AIR)*

# Air Quality

VOCs & NOx  
= Ozone  
precursors

Ammonia  
↓ ↓  
Fine PM Odor

- Methane
- PM 10, PM 2.5 (asthma & lung cancer)
- emissions from trucking materials off-site

| San Joaquin Valley Attainment Status |                                    |                              |
|--------------------------------------|------------------------------------|------------------------------|
| Pollutant                            | Designation/Classification         |                              |
|                                      | Federal Standards <sup>a</sup>     | State Standards <sup>b</sup> |
| Ozone - One hour                     | No Federal Standard <sup>f</sup>   | Nonattainment/Severe         |
| Ozone - Eight hour                   | Nonattainment/Extreme <sup>e</sup> | Nonattainment                |
| PM 10                                | Attainment <sup>c</sup>            | Nonattainment                |
| PM 2.5                               | Nonattainment <sup>d</sup>         | Nonattainment                |
| Carbon Monoxide                      | Attainment/Unclassified            | Attainment/Unclassified      |
| Nitrogen Dioxide                     | Attainment/Unclassified            | Attainment                   |
| Sulfur Dioxide                       | Attainment/Unclassified            | Attainment                   |
| Lead (Particulate)                   | No Designation/Classification      | Attainment                   |
| Hydrogen Sulfide                     | No Federal Standard                | Unclassified                 |
| Sulfates                             | No Federal Standard                | Attainment                   |
| Visibility Reducing Particles        | No Federal Standard                | Unclassified                 |
| Vinyl Chloride                       | No Federal Standard                | Attainment                   |

# Scrape Systems

---

- Scrape systems may potentially decrease GHG emissions
- Composting  $\Rightarrow$  must be done under proper conditions to avoid further emissions & maintain proper C:N ratio to stabilize N
- Water/odor impacts of scrape? Storage of scraped manure?