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Agricultural Land Use in California

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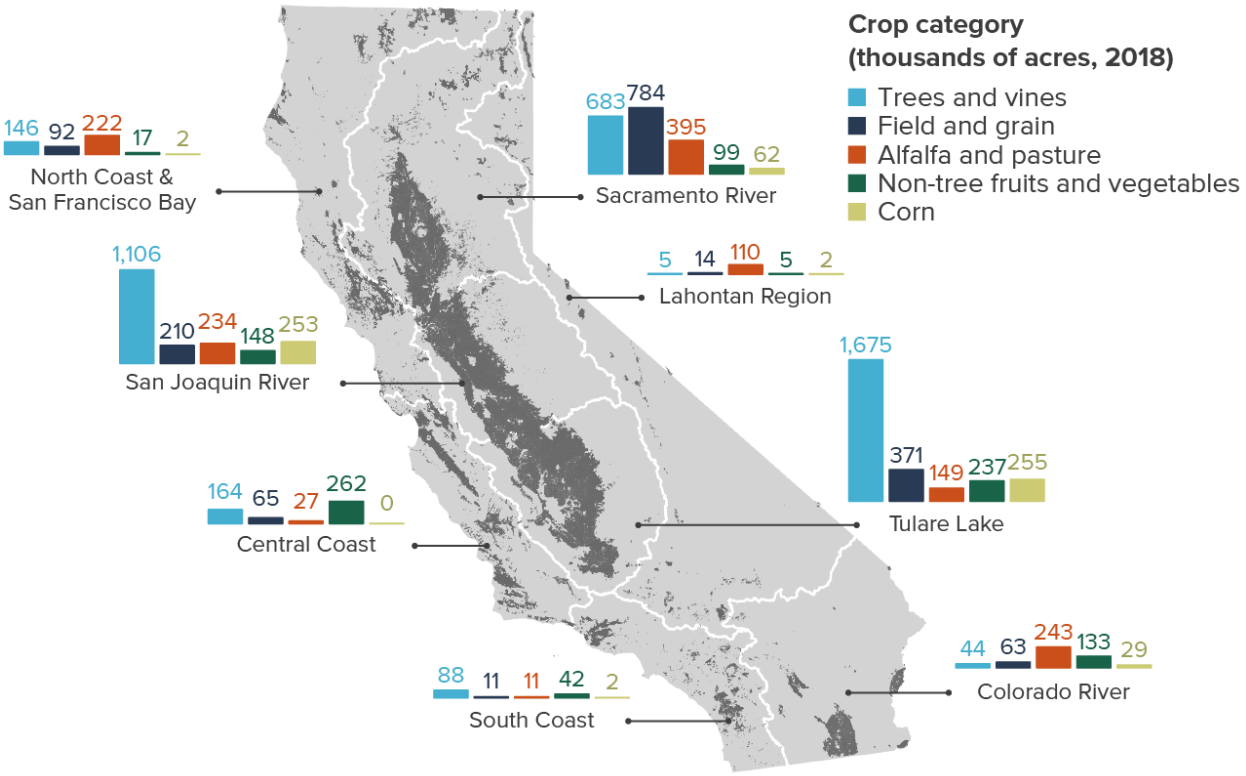
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Roughly 40 million acres—40% of California's land—are used for agriculture

- One-fifth of all working lands, or about 8.5 million acres, is used for irrigated crops, including a diverse mix of nuts, fruits, vegetables, grains, hay, and fiber.
- In addition, livestock grazing occurs on about 32 million acres of mostly non-irrigated rangeland—including 17 million acres of private lands and 15 million acres of federal lands.
- California's irrigated crops use about 40% of the state's water, or 80% of all water used by homes and businesses. They generate over $40 billion in farm revenue annually, and they supply large dairy and beef sectors, which generate more than $10 billion.

The crop mix varies considerably across different regions of California



SOURCE: Author calculations using California Department of Water Resources (DWR) Statewide Crop Mapping dataset. For details, see the dataset: PPIC Irrigated Crop Acreage, 2018–22 (Cole 2024).

NOTES: The map shows irrigated crop acreage in 2018, a near-average water year. Dark gray areas are irrigated cropland and are broken into five groups: (1) alfalfa and pasture, (2) corn (primarily for animal feed), (3) field and grain (cotton, dry beans, rice, safflower, sunflower, grains, and hays), (4) trees and vines (including fruit and nut perennials), and (5) non-tree fruits and vegetables (berries, cucurbits, lettuce, onions, garlic, tomatoes, and truck crops). Crop totals are shown by hydrologic region.

Irrigated farmland is concentrated in several regions, and the crop mix has been shifting

- About three-quarters of all irrigated acreage lies in the Central Valley, where a variety of crops is grown. Specialty fruits and vegetables and forage for dairy and beef are grown along the coast and the southeast.
- Although total acreage has remained similar in recent decades, the crop mix has shifted dramatically. Perennial orchards and vineyards now cover about half of all

acreage—double their share in the mid-1980s. Cotton, alfalfa, and other annual crop acreage has fallen.

- Marijuana, another irrigated crop, is only partially tracked. About 2,000 acres are cultivated on small, permitted farms, and there are also many illegal grow operations.

California's mild winters enable farmers to grow more than one crop a year on some lands

- Multicropping, or the practice of planting two or more successive crops on the same field within a year, takes place on about 800,000 acres of vegetables, corn, and grains.
- This practice—which can supplement farm income—is most prevalent in the Central Coast (33% of acreage), the Colorado River region (16%), and the southern Central Valley (12%).

Drought can have acute impacts for some sectors and regions

- Declines in water availability in the Central Valley during the 2020–22 drought caused farmers to fallow several hundred thousand acres, especially rice and cotton.
- Sensitive fruits and vegetables, such as grapes and lettuce, also experienced declines in yield due to extreme heat, wildfire smoke, and harvest disruption.
- Although crop insurance and water trading enable some growers to mitigate drought impacts, fallowing and yield losses are estimated to have cost over a billion dollars of economic output and thousands of jobs in both 2021 and 2022.

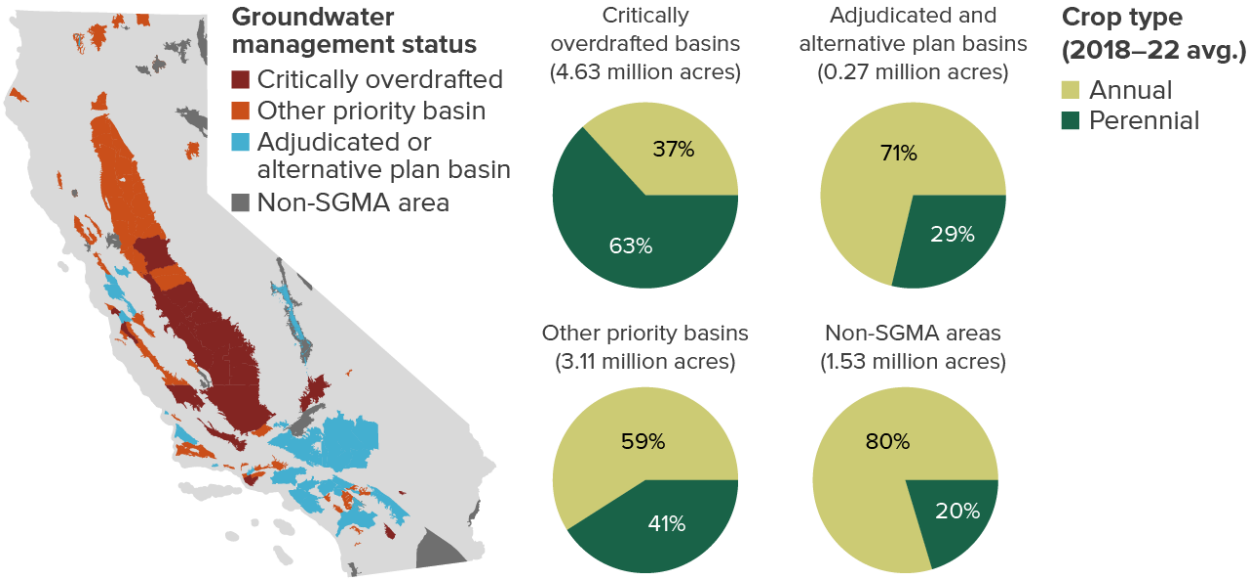
Attaining groundwater sustainability will also put pressure on some farmland

- Most irrigated cropland (82%) lies in areas that must comply with the Sustainable Groundwater Management Act (SGMA), which requires water users to end overdraft by the early 2040s and avoid significant undesirable impacts from groundwater use.
- Nearly half of all cropland (about 4 million acres) lies in critically overdrafted basins. While recharging more groundwater in wet years can help reduce overdraft, at least 500,000 acres of southern Central Valley cropland likely will need to be taken out of irrigated production to reduce demand.
- Perennial crops make up the highest share of acreage in critically overdrafted basins (63%), and this acreage has continued to grow. Taking perennials out of production

to manage water demand can be especially costly because growers lose valuable multi-year investments.

- Some local groundwater agencies have begun implementing groundwater allocations, water trading, and incentives for recharging water or strategically fallowing land to help growers adapt. Growers could also shift some lands to crops that need less irrigation—such as winter forages and other cool-season crops.

Critically overdrafted basins have the highest share of perennial crops, which are more costly to fallow



SOURCE: Author calculations using California Department of Water Resources (DWR) Statewide Crop Mapping dataset and DWR's SGMA portal for basin designations. For details, see the dataset: PPIC Irrigated Crop Acreage, 2018–22 (Cole 2024).

NOTES: The map shows the groundwater management status of different agricultural areas. Critically overdrafted basins (red) and other priority basins (orange) are subject to SGMA. Adjudicated and alternative plan basins (blue) are either exempt from SGMA (by virtue of a court-approved adjudication) or have an approved alternative plan (by virtue of other arrangements—such as special management districts). Non-SGMA areas (dark gray) either do not have usable groundwater (e.g., much of San Diego and Imperial counties) or are at lower risk of overdraft. The pie charts show the percentage of perennial trees and vines versus annual crops for the period of 2018–22.