Notes on the use of these slides

These slides were created to accompany a presentation. They do not include full documentation of sources, data samples, methods, and interpretations. To avoid misinterpretations, please contact:

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Thank you for your interest in this work.
Water, agriculture, & economics in a post-SGMA California

CSAC Ag, Environment, and Natural Resources Policy Committee

April 12th, 2023, Sacramento CA

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Supported with funding from the S. D. Bechtel, Jr. Foundation, the California Strategic Growth Council’s Climate Change Research Program with funds from California Climate Investments, the Babbitt Center for Land and Water Policy at the Lincoln Institute for Land Policy, the USDA, and the CDFA.
Water challenges for California agriculture

- Hotter, more intense droughts
  - 400,000 of acres fallowed in 2021, 700,000 in 2022
  - Increased groundwater pumping

Source: J. Medellin-Azuara et al. (2022) “Economic Impacts of the 2021 and 2022 Drought on California’s Agriculture” (CDFA-supported project).
Water challenges for California agriculture

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- Growing flood risk

Image: CA Strawberry Commission
Water challenges for California agriculture

▪ Hotter, more intense droughts
  ◦ 400,000 of acres fallowed in 2021, 700,000 in 2022
  ◦ Increased groundwater pumping

▪ Growing flood risk

▪ SGMA
  ◦ Many changes and pain points—but opportunities as well

Source: Ayres et al. Improving CA’s Water Market (PPIC 2021)
Water challenges for California agriculture

- Hotter, more intense droughts
  - 400,000 of acres fallowed in 2021, 700,000 in 2022
  - Increased groundwater pumping

- Growing flood risk

- SGMA
  - Many changes and pain points—but opportunities as well

- Pressures beyond water
  - Labor market, supply chain issues, inflation

Policy Brief: The Future of Agriculture in the San Joaquin Valley

Alvar Escriva-Bou, Ellen Hanak, Spencer Cole, and Josué Medellín-Azuara, with research support from Annabelle Rosser
Agriculture is a key driver of San Joaquin Valley economy

- Average annual water supplies could decline 20% by 2040
  - 50,000 jobs lost, 2.3% decline in economic activity

- Careful management can help soften the blow:
  - Improved trading rules
  - Water infrastructure; recharge
  - Improved ag productivity
  - Incentivizing alternative uses for irrigated lands
Without new supplies, nearly 900,000 acres could go fallow, most of them high-value perennial crops.

Current crop mix in the valley

Source: Escriva-Bou et al. *The Future of Agriculture in the San Joaquin Valley* (PPIC 2023)
Without new supplies, nearly 900,000 acres could go fallow, most of them high-value perennial crops.

Current crop mix in the valley

Acreage fallowed by crop

Revenue losses by crop

Source: Escriva-Bou et al. *The Future of Agriculture in the San Joaquin Valley* (PPIC 2023)
Water reductions by 2040 will reduce farm GDP (and jobs)

Source: Escriva-Bou et al. *The Future of Agriculture in the San Joaquin Valley* (PPIC 2023)
Water trading could significantly cushion the costs of water supply reductions

Source: Escriva-Bou et al. The Future of Agriculture in the San Joaquin Valley (PPIC 2023)
New supplies and increased productivity could further soften the blow

Source: Escriva-Bou et al. *The Future of Agriculture in the San Joaquin Valley* (PPIC 2023)
Trading would shift the fallowing risk, moving water to reduce costs of fallowing.

Source: Escriva-Bou et al. *The Future of Agriculture in the San Joaquin Valley* (PPIC 2023)
Many areas have solar energy and habitat assets

Land suitable for **solar** and likely fallowing (thousands of acres)

Source: Ayres et al. *SGMA and Solar Energy Development in the San Joaquin Valley* (PPIC 2022)

Suitable **habitat** for x number of San Joaquin Desert species

Source: The Nature Conservancy, PPIC (map by Shayan Kaveh)
Other areas could be suitable for water-limited forage production

Five-ton forage yield (winter wheat)

Source: Peterson, Pittelkow, and Lundy. *Exploring the Potential for Water-Limited Agriculture in the San Joaquin Valley* (PPIC 2022)
The big picture:

- California’s irrigated agriculture footprint will shrink with SGMA, changing climate
- Reduced water supplies will call for both supply- and demand-side adaptations
- Careful management can help soften the blow:
  - Flexible water use (trading)
  - Investments in infrastructure, ag productivity
  - Incentives to productively repurpose ag lands
Counties can play an important role in planning and implementation

- Facilitating transparent and responsible water trading, groundwater banking
- Supporting well mitigation efforts
- Investing in local conveyance, flood protection
- Enabling coordinated farmland transitions
Thank you!