



COLORADO

Department of Agriculture

CSU Interdisciplinary Water Resource Seminar

Robert Sakata
Ag Water Policy Advisor

Sept 16, 2024
Ft Collins, Colorado



Occupation of Hope

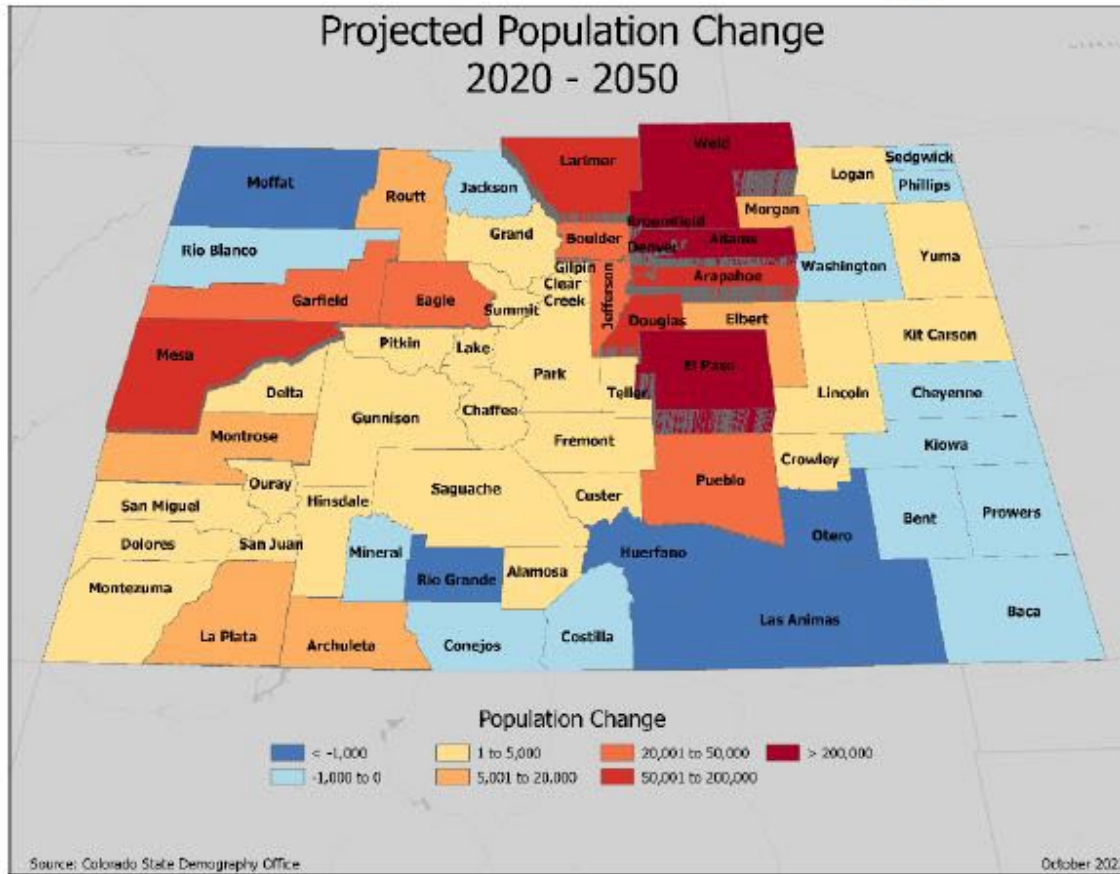


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<https://www.nass.usda.gov/AgCensus/>



The Colorado long-term forecast



Statewide increase 1.7 Million

- 1.5 M Front Range (88%)
- 54% Denver-Boulder
- 26% North Front Range
- 20% South Front Range
- Only region with Natural Increase through 2050
- 170 K Western Slope (10%)
- 12 K Eastern Plains (1%)
- 5 K Central Mountains and San Luis Valley



COLORADO
Department of Local Affairs



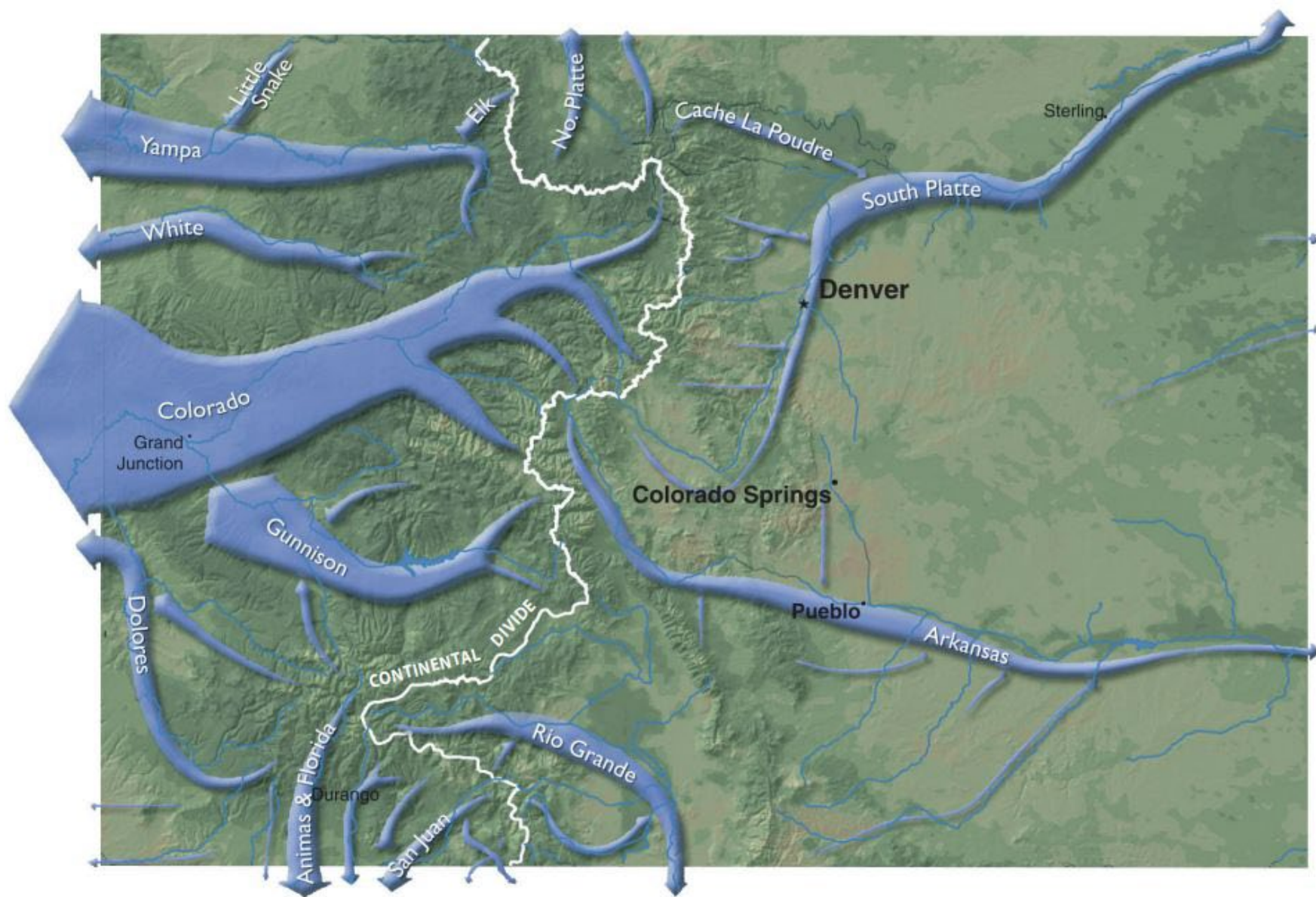


Figure 01-03. "Snake Diagram" schematic showing relative annual average stream flow of Colorado Rivers. Source: Colorado Division of Water Resources, 2011 revision. Colorado Geological Survey ON-010 Colorado Groundwater Atlas.

Colorado statewide annual temperature anomaly (°F), with respect to 1971-2000 average

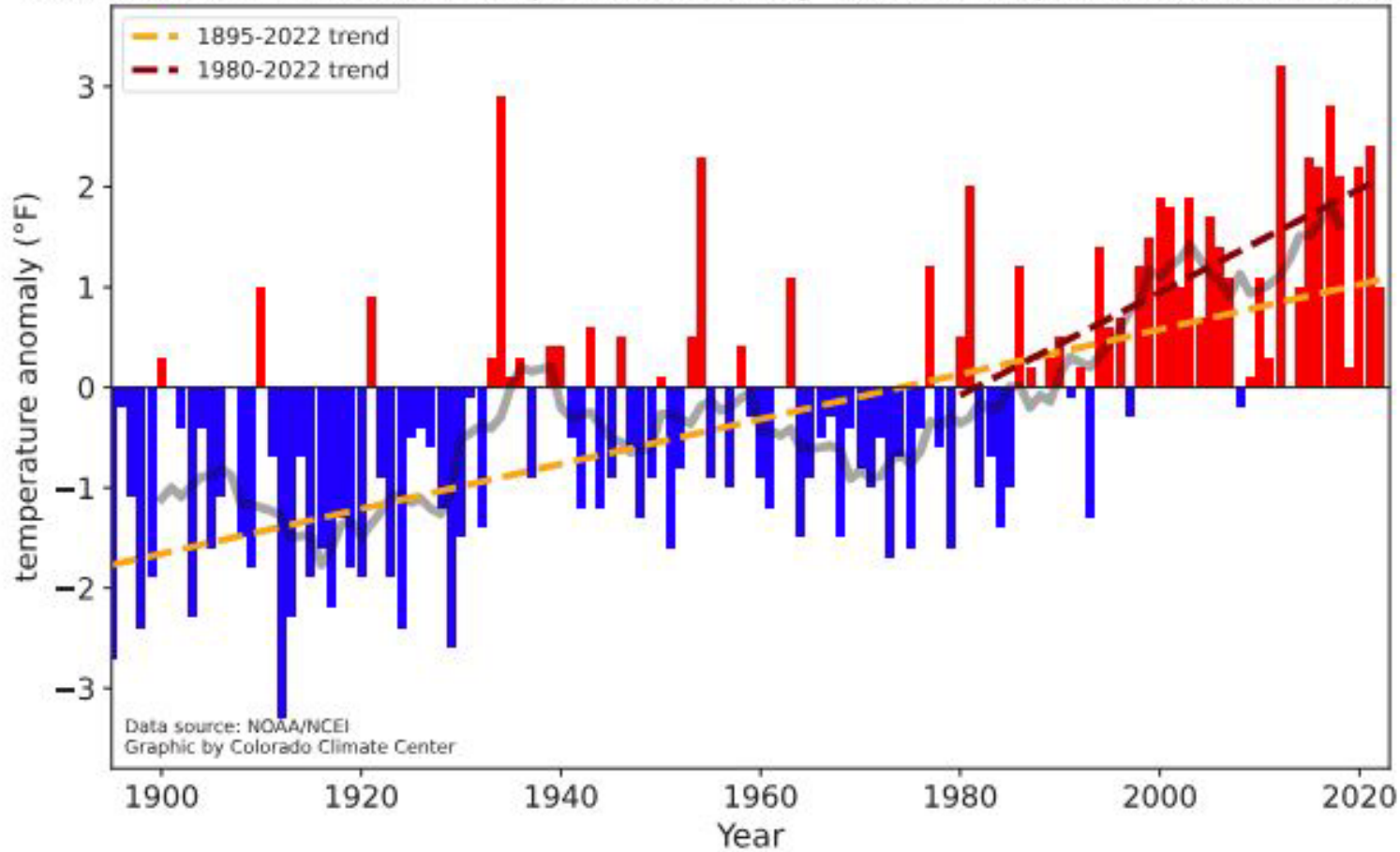


Figure 2.3: Colorado statewide temperature anomaly (°F) with respect to the 1971-2000 average of 45.1°F. The 1895-2022 trend (yellow dashed), and 1980-2022 (red dashed) lines are included.



Climate variable/event	Recent trend	Projected future change	Confidence in change
Average Temperature	Warmer	Warmer	Very High ●
Annual Precipitation	Lower	Uncertain	Low ☹️

Climate variable/event	Recent trend	Projected future change	Confidence in change
Spring Snowpack	Lower	Lower	Medium 😞
Runoff timing	Earlier	Earlier	High ●
Annual Streamflow	Lower	Lower	Medium 😞
Summer soil moisture	Lower	Lower	High ●
Evaporative demand	Higher	Higher	Very High ●

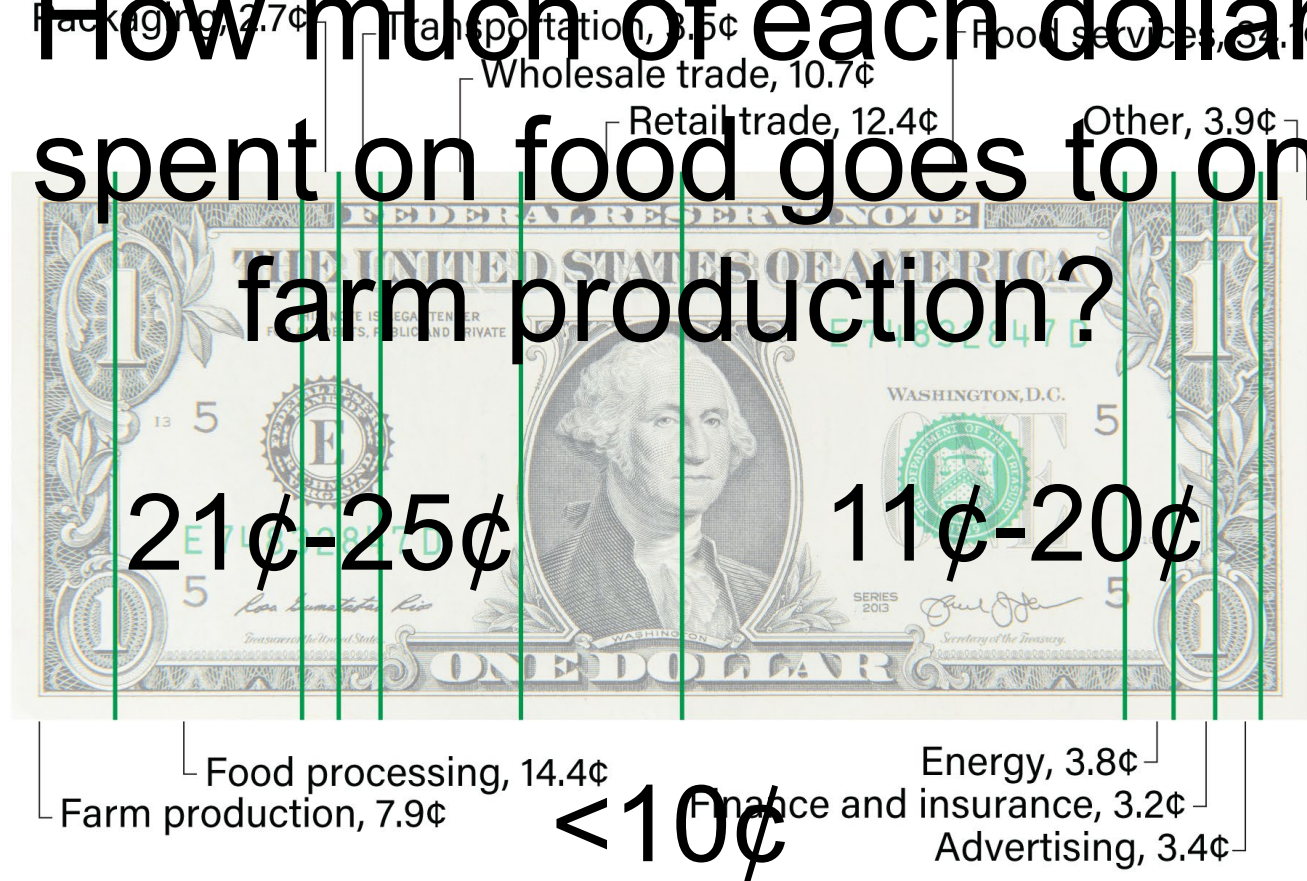


Climate variable/event	Recent trend	Projected future change	Confidence in change
Heat waves	More frequent/intense	More frequent/intense	Very High ●
Cold waves	Fewer	Fewer	Medium 🌅
Droughts	More frequent/intense	More frequent/intense	High ●
Wildfires	More and larger	More and larger	High ●
Extreme precipitation	More intense	More frequent/intense	Medium 🌅
Flooding	Mixed	Higher	Medium 🌅
Windstorms	Uncertain	Uncertain	Low 🌅
Severe thunderstorms	Uncertain	More frequent	Low 🌅
Hail	Uncertain	More large hail	Low 🌅
Tornadoes	Uncertain	Uncertain	Low 🌅
Winter storms	Uncertain	Larger storms	Low 🌅
Dust on snow events	Greater dust levels	Greater dust levels	Medium 🌅



2022 Food Dollar Series' industry group dollar, nominal

How much of each dollar spent on food goes to on farm production?



Note: The food dollar estimates provide the average industry group shares of each nominal, or unadjusted for inflation, dollar spent on domestically produced food in a year. **Other** includes Agribusiness (2.1 cents) and Legal and accounting (1.8 cents).

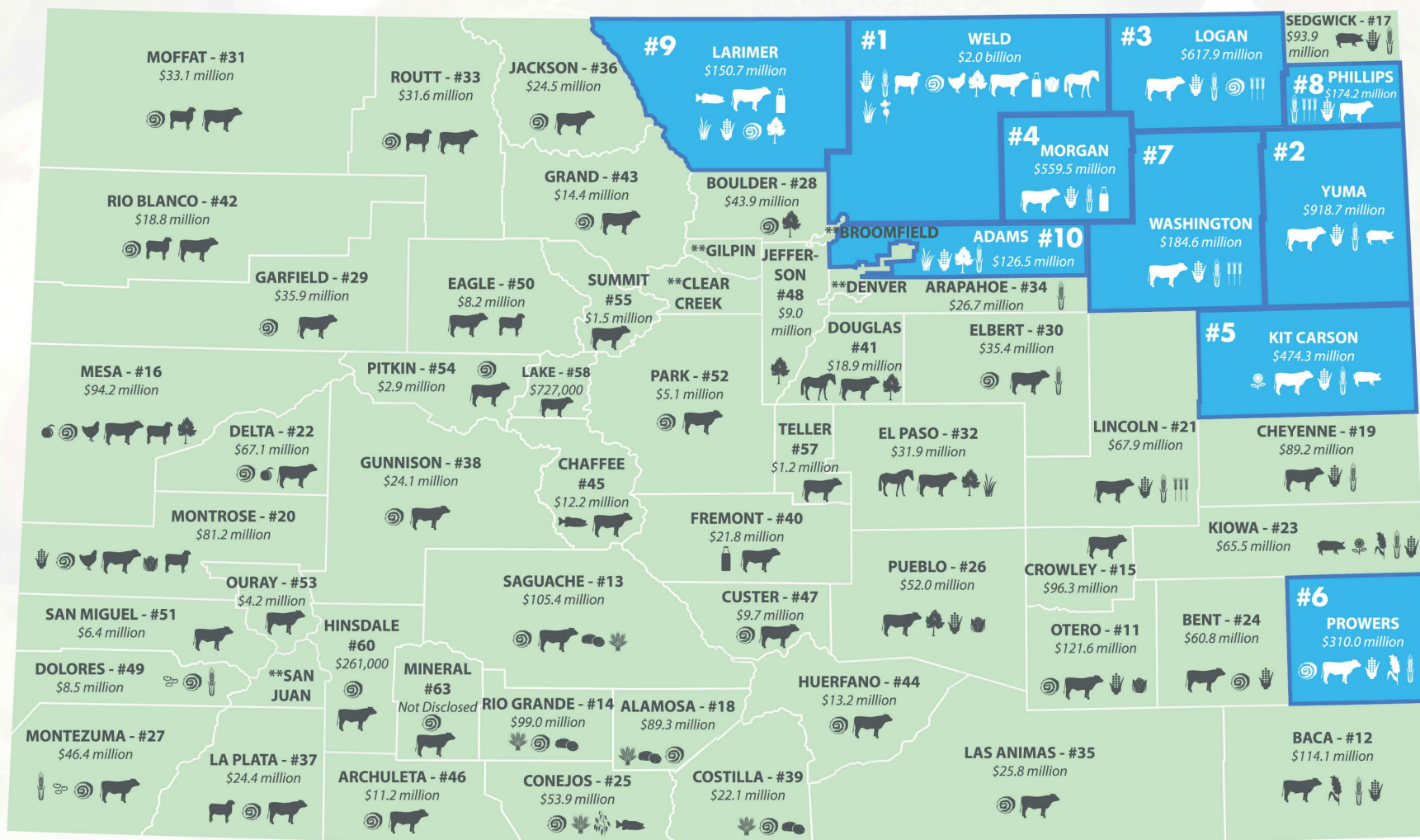
Source: USDA, Economic Research Service, Food Dollar Series.



A GLIMPSE OF COLORADO AGRICULTURE*



COLORADO
Department of Agriculture



- KEY**
- Aquaculture
 - Barley
 - Cattle
 - Corn
 - Dairy
 - Dry Beans
 - Fruits
 - Hay
 - Hogs
 - Horses
 - Millet
 - Nursery
 - Oats
 - Poultry & Eggs
 - Potatoes
 - Sheep
 - Sod
 - Sorghum
 - Sugarbeets
 - Sunflowers
 - Vegetables
 - Wheat

** #56 DENVER Not Disclosed
 #59 BROOMFIELD \$613,000
 #61 GILPIN \$216,000
 #62 CLEAR CREEK \$174,000
 SAN JUAN Not Available

BLUE AREAS
 are top ten agricultural
 counties in Colorado.

*Value of agricultural products sold by county. Data from 2017 Census of Agriculture, USDA.

Challenges



*Occupation
of Hope*

Challenges











Metal ions as selective triggers for removing oligodeoxynucleotide phosphotriester protecting groups

Y. Stabinsky, R.T. Sakata, M.H. Caruthers*

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[https://doi.org/10.1016/S0040-4039\(00\)86807-0](https://doi.org/10.1016/S0040-4039(00)86807-0)

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Abstract

The *o*-bromophenyl group was successfully tested as a phosphotriester protecting group for internucleotide bonds. This protecting group can be readily and selectively removed using various transition metal salts in aqueous pyridine.



ROSIE'S
BBQ & GRILLERY



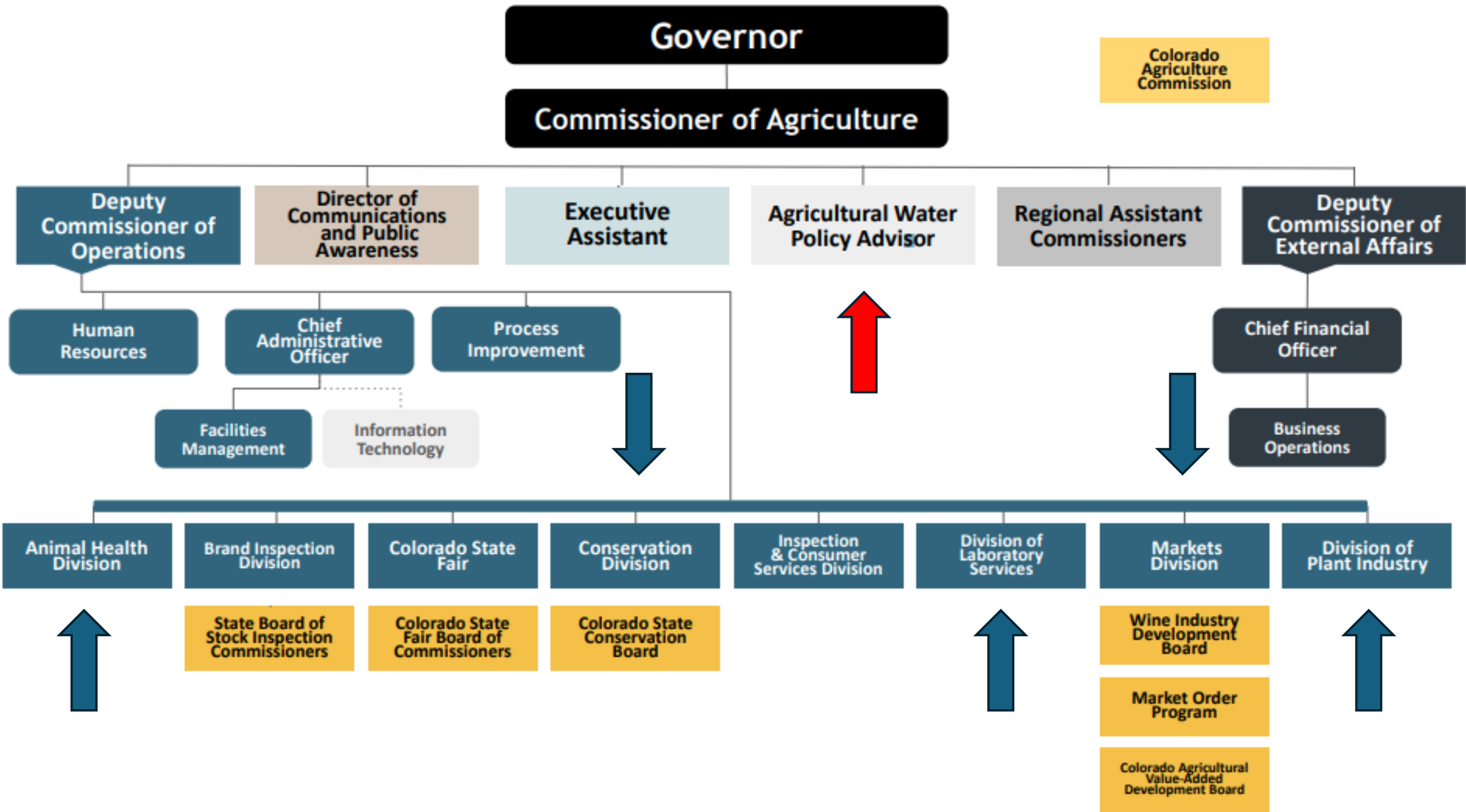
Steamboat®











Job Description:

- This position will be a leader and staff authority advising the Commissioner of Agriculture, on water policy and engaging with stakeholders and agriculture water users to address water supply challenges...



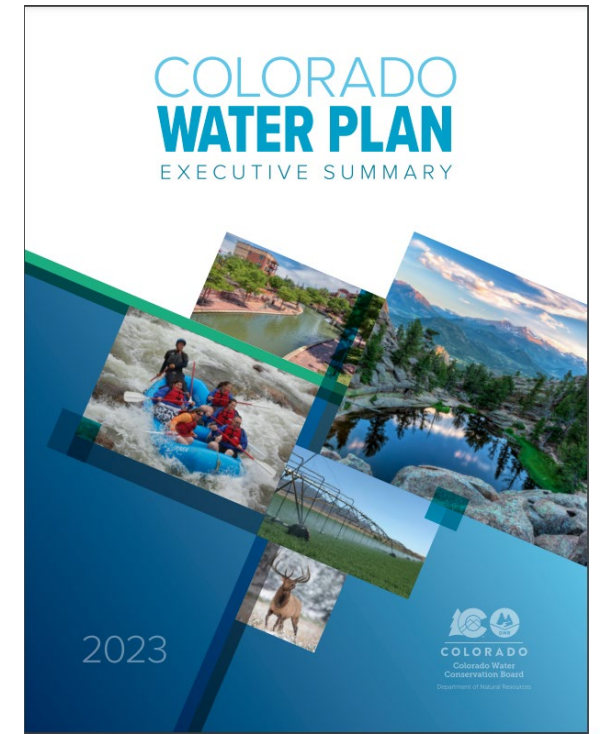
This includes local governments, State and Federal partners



Job Description:

- This position will be responsible for the implementation of agency action items identified in the 2023 updated Colorado Water Plan...

1. Integrate soil health, water conservation , and adaptive practices that maintain or increase agriculture production with less water,
2. Facilitate collaborative water sharing agreements
3. Support peer to peer learning between farmers/ranchers



Job Description:

- **This position will focus on water policy and research, lead in outreach and technical assistance, and represent the department on various working groups and public discussions around agricultural water.**

1. Educational Institution
2. CSU Cooperative Extension
3. Colorado Water Center
4. NRCS

5. Conservancy and Conservation Districts
6. Agricultural Organizations
7. Water Policy Organizations
8. Conservation groups



Job Description:

- This position will be the Department's lead working with the Colorado Water Conservation Board, Colorado Groundwater Commission, Department of Natural Resources, Basin Roundtables, Colorado Department of Health and Environment, Water Conservation Districts, and agricultural water users to meet water supply and quality challenges while promoting a vibrant agriculture...
 1. CWCB meets every other month
 2. CO Groundwater Commission meets quarterly
 3. 9 Basin Roundtables: meeting monthly
 4. IBCC: meets 2 times per year
 5. CDPHE: meeting monthly
 6. CO State Conservation Board
 7. 75 Conservation Districts





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Colorado Water Conservation Board

Department of Natural Resources



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Department of Public Health & Environment



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Department of Agriculture



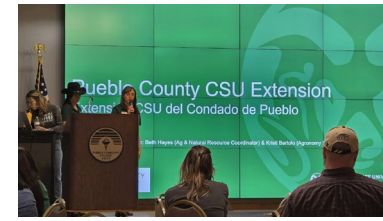
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Division of Water Resources

Department of Natural Resources



- So far this year I have:
- Attended 80 events
- Presented at 34 of those events



Partner discussion:

- Metro Chamber of Commerce: Colorado Competitive Council
- NWCCOG
- SW Water Conservation District
- AZ Director of Agriculture: Paul Brierly
- CCI
- EPA Region 8
- Netherlands Ministry of Agriculture
- Stratton COOP and Stratton FFA
- BASF Behavioral Health
- CSU President Parsons
- Oak Creek FFA: Jay Whaley
- Rio Grande Water Conservation District
- CFB ELA X
- CO Potato Administrative Committee: Jim Ehrlich



Topics around the state:

- Aurora purchase of 5,000+ acres in the lower Arkansas
- Wildfire/Watershed Protection
- Groundwater Sustainability
- Water Quality (nutrients, salinity, CEC)
- Futile Call
- Postponement Doctrine
- Revegetation/reclamation
- Measurement Rules Div 6 and 7
- Co River Post 2026 negotiations
- Perkins County Canal
- TX vs NM on the Rio Grande River
- Shoshone water rights permanency
- Modernization of aging agricultural infrastructure
- Fresh Water Trust: Land Use Modelling efforts
- Mirasol: Looking at the Sun: Palmer Land Conservancy
- Dredge & Fill



CO Department of Agriculture Programs

Conservation Services

- Ag Water Quality
- Conservation Board
- Ag Drought & Climate Resiliency Office
- CDA Energy Programs
- CO Soil Health Program
- Climate-Smart Natural and Working Lands

Markets

- Climate Smart Commodities
- Resilient Food Systems Infrastructure
- Next Generation Ag Leadership
- Ag Loan Program



Major city announces ban on new homes due to concerning conditions: 'We're going to manage this situation'

Laurelle Stelle

September 17, 2023 · 2 min read

↑ 2.3k



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Britain's 'broken' water system: a history of death, denial and diarrhoea

Published: July 31, 2024 12:05pm EDT Updated: August 6, 2024 4:57am EDT

'The monstrous contents of a magnified drop of River Thames water', as envisaged by the artist William Heath in 1828. Wellcome Collection, CC BY-NC-ND

One of the world's biggest cities may be just months away from running out of water

By Laura Paddison, Jack Guy and Fidel Gutiérrez, CNN



Agricultural and Forest Meteorology

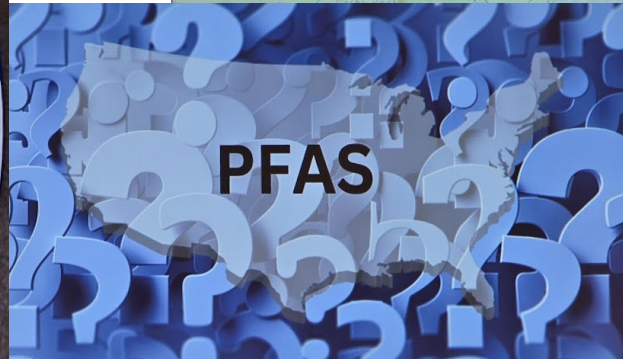
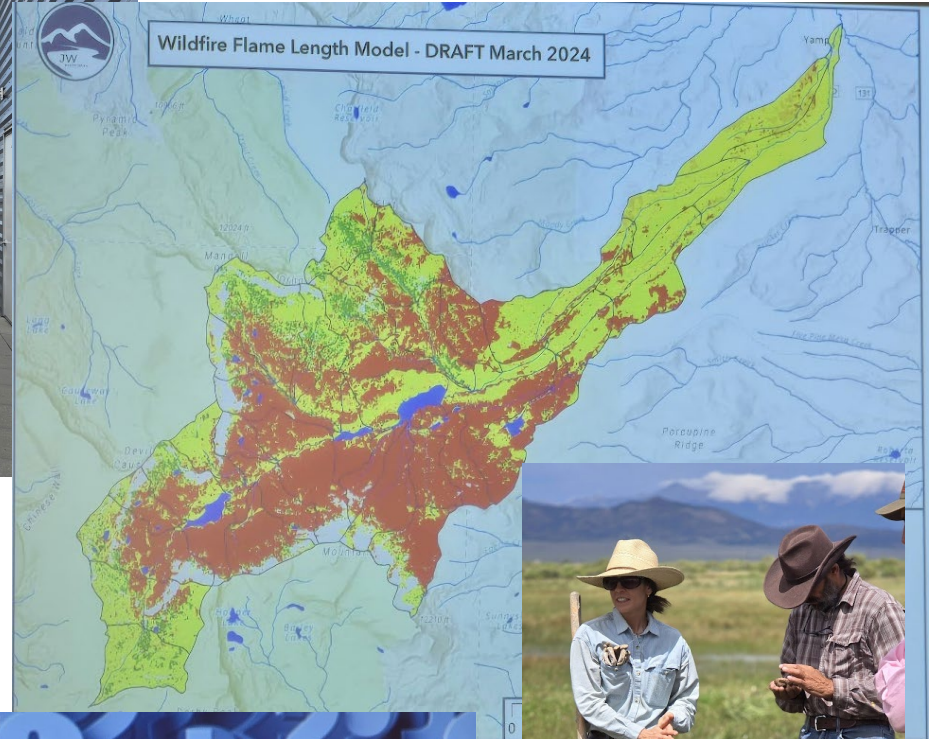
Volume 331, 15 March 2023, 109343



Rural agriculture largely reduces the urban heating effects in China: A tale of the three most developed urban agglomerations

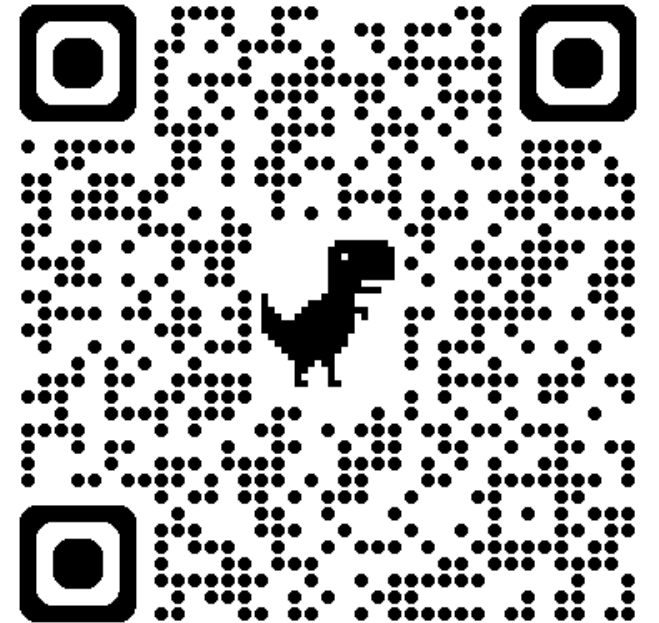
Zhangmei Yan †, Decheng Zhou †





More than 50,000 Americans took their own lives in 2023, the nation's highest yearly rate of suicide on record. Farmers are 3.5 times more likely to die by suicide than the general population, according to the National Rural Health Association. Special correspondent Megan Thompson reports from Wisconsin on the burden farmers often deal with and what's being done to help them.

PBS News







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Department of Agriculture

Thank you!

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Ag.Colorado.gov