COLORADO
Department of Agriculture

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"Hearing on the High Plains: Combating Drought with Innovation"

U.S. Senate Subcommittee on Conservation, Climate, Forestry and Natural Resources
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Chairman Bennet, Ranking Member Marshall, and honored members of the committee,

Thank you for the opportunity to provide testimony for your hearing on combating drought with innovation here in the High Plains region of the United States.

My name is Robert Sakata and our family has a farm in Brighton, Colorado started by my father 80 years ago. In January of this year, I was privileged to start as the first ever Agricultural Water Policy Advisor at the Colorado Department of Agriculture, hired by Colorado Agricultural Commissioner Greenberg who will be speaking later today. I wanted the job because I am deeply invested in overcoming the challenges and exploring the opportunities facing our agricultural communities amidst increasing climate variability and prolonged drought conditions. Working with a wide variety of dedicated partners, some of whom will also be testifying today, I hope to be able to help Colorado's agriculture community adapt to these dry times. While we can make great strides at the state and local level, a strong commitment from our federal partners is vital for our work to progress successfully.

I am honored to lead off the discussion today and will start off by defining the problem and then will provide a broad overview of the challenges agriculture is facing that is contributing to the problem, which others will go into more detail on. Included will be some personal experiences on our family farm and observations in my new role with the Colorado Department of Agriculture. I will provide some startling facts and then conclude with some suggested actions.

What is the problem? The rapid decrease of irrigated farmland. The U.S. Department of Agriculture's (USDA) 2022 Census of Agriculture reveals that over the last 25 year reporting period, irrigated acreage in Colorado has decreased by 1,086,425 acres. That is a 32.2% reduction and accounts for 80% of the reduction of irrigated land across the entire United States[1]. I feel like the decline in irrigated agriculture in the arid West is reaching a tipping point that we need to act now before it is too late.

Colorado is what we refer to as a headwaters state. We have 158 named rivers flowing through the state, with all but the Green and Cimarron Rivers generating from Colorado's mountains[2]. 83% of the State's water use is based on surface water supplies from these rivers. The other 17% comes from groundwater supplies like the High Plains aquifer or the Ogallala, and the San Luis Valley aquifer. How we manage these water supplies is more important than ever due to a changing climate.

The High Plains region, known for its agricultural productivity, faces significant challenges due to recurring droughts exacerbated by climate change. These challenges threaten the livelihoods of farmers and ranchers, jeopardizing food security, and underscore the urgent need for innovative solutions.

Why is irrigated acreage decreasing so rapidly? We need to look at 4 major factors, (1) the changing climate, (2) the continued municipal and industrial growth, (3) the efforts to manage the state's important groundwater resources, (4) the limited financial resources available to most farmers and ranchers.

Climate Change: Today you will hear from climate experts describing the trends in our climate, as outlined in the Colorado Climate Center's Climate Change Report.[3] This change is creating a perfect "non-storm", increasing demands on our limited water supply due to population growth and rising temperatures.

Population Growth: The Colorado State Demographer's office report released in January 2024 indicates that although population growth has slowed down it is still forecasted to be higher than the national average. Looking further into their data the majority of growth is expected to occur in the counties with larger municipal centers while in particular, eastern agricultural-based counties may continue to lose population.[4]

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[1] https://www.nass.usda.gov/Publications/AgCensus/2022/
[2] https://www.rivers.gov/colorado
[3] https://climatechange.colostate.edu/
[4] https://storymaps.arcgis.com/stories/c81462dd7bc44924b4876a4d016c1194

Managing Groundwater Supplies: Across Colorado, work is actively going on to ensure that groundwater and surface water supplies are managed sustainably, leading farmers to approach what they do in a different way. Major efforts are underway to reduce the pumping of groundwater wells in the Republican River Basin and in the Rio Grande Basin in order to achieve that goal. Farmers are changing management strategies participating in educational and technical programs like the Colorado Master Irrigators[5] , the Colorado State University Testing Performance Solutions, referred to as TAPS,[6] and grants looking at alternative low-water use forage crops, like sainfoin[7] and rye, in a project called "The Rye Resurgence Project"[8]

Limited Financial Resources: America's farm and ranch families and their dedicated staff work tirelessly to provide the food and fiber that we all need to survive. The U.S. consumer spent an average of only 11.3 % of their disposable income on food in 2022 according to the USDA Economic Research Service (ERS) allowing them to have the purchasing power to support the rest of our economy. And yet, even though food costs have gone up the last couple of years, the USDA ERS reports that only 7.9 cents of each food dollar spent goes back to the farm production![9] On our farm we have not only had to adapt to less water supplies by becoming more water-efficient, but we have also had to become more financially efficient, reducing our costs as much as we can just to survive. We have had to adapt and we keep adapting, which has meant growing less fresh vegetables and experimenting with water conservation practices.

Unfortunately farm families across the arid western United States are on the front lines battling drought and aridification. These challenges not only reduce crop yields and livestock productivity but also strain water resources critical for irrigation, domestic, industrial and environmental uses. They disrupt rural economies, increase financial instability among farmers, and heighten food prices—impacting consumers nationwide.

The State of Colorado has been a leader in the fair administration of water rights which is critical in times of water shortages. Water rights in Colorado and across the West are unique when compared to other parts of the United States. The use of water is governed by what is known as the "Prior Appropriation System". This system of water allocation controls who uses how much water, the types of uses allowed, and when those waters can be used. Amid severe drought, the fair administration of water rights

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[5] https://www.comasterirrigator.org/
[6] https://www.irrigationinnovation.org/csu-taps
[7] https://dnrweblink.state.co.us/cwcb/0/edoc/221419/17y.pdf?searchid=cda63f5b-f631-4f33-92bb-83c91565181d
[8] https://www.ryeresurgence.com/
[9] https://www.ers.usda.gov/data-products/ag-and-food-statistics-charting-the-essentials/food-prices-and-spending/

has been and will continue to be challenging, expensive, and painful for Colorado agriculture.

For example, on May 8th, 2006, the Colorado State Engineer ordered over 440 alluvial groundwater wells to be shut down in the South Platte basin in Northeastern Colorado because they were found to have insufficient augmentation plans, causing injury to downstream senior water rights holders. Our family farm had 4 wells that were red tagged and we were forced to look for alternative water, which during that drought period was impossible. Instead, we just watched as our crops withered away and died. It would have been easy for us to sell out and give up farming — and the pressure to do so is even greater today as our surface water rights are more valuable than the land we farm — but I believe in farming and the importance of it to our society.

A critical partner in this work is the Colorado Division of Water Resources whose job it is to allocate our water resources based on our prior appropriation system as they continue to expand their measurement capabilities across the state. As water rights are changed from agriculture uses to municipal and industrial uses, the job of administering water allocation has become more and more complex. New innovative programs like the Colorado Airborne Snow Measurement (CASM) Program, which uses LIDAR measurements to help forecast the yield of water from snowpack, can help us better manage the limited and variable water resources we have each water year[10].

Also reported in the 2022 USDA Ag Census is that input costs for farmers and ranchers are skyrocketing. Increasing labor rates, a shortage of seasonal housing, higher feed, seed, and fertilizer costs to name a few. On top of that are all of the uncontrollable challenges associated with farming and ranching, including hail, flooding, drought, wind, commodity market fluctuations, and supply chain disruptions. Farmers can't afford to take on another risk of modifying their operations with the risk of no return. As a personal example on our farm when we switched from growing fresh vegetables to feed crops for our local dairies, it gave us the opportunity to move away from intensive soil tillage practices. We bought a new planter and strip-till machine to be able to incorporate reduced tillage into our operation at a cost of $183,572.06. The first season we implemented reduced tillage using this new equipment, almost all of our pinto bean crop was a failure, and we didn't make enough money to pay off the loan for that investment. I am happy to report that we are now using that machine more successfully, and we were very fortunate to eventually be able to recover from those losses mainly through the sale of our vegetable farming equipment. But many operations are not as lucky.

I am very proud to farm in a state that cares about farmers and ranchers, the hard work we are doing as stewards for our land, animals, water, families and staff. The most

[10] https://coloradosnow.org/

recent Colorado Department of Agriculture public attitudes survey reports that 98% of respondents agree that Colorado's food and agriculture industry is important[11]. This is especially surprising considering that according to the USDA Economic Research Service Data only 1.2% of U.S. employment was directly on the farm[12]. Although most people don't have a direct or personal connection with farms anymore they have a vague understanding of how much farmers and ranchers do to support the way of life they enjoy. I think we need to find more ways to compensate our agricultural communities for the critical work they are so dedicated to.

My new role has provided me the opportunity to travel across the State of Colorado and participate in some of the numerous water conversations going on. This includes the nine Basin Roundtables across the state, Water and Soil Conservation Districts, Colorado Counties Inc., Councils of Governments and Chambers of Commerce and Tribal consultation. It is truly amazing to hear about and see the wide range of innovation by farmers and ranchers with their limited resources, some of whom you will hear from later today.

I would also like to highlight the efforts of the Colorado Water Conservation Board (CWCB) to support these efforts. In the recently updated Colorado Water plan, one of the four "Visions for Colorado" is for *Robust Agriculture* along with *Vibrant Communities*, *Thriving Watersheds*, and *Resilient Planning*. The updated plan adopted by CWCB in January of 2023 was a result of an extensive two-year outreach effort and work by the nine Basin Roundtables, and discussions with a variety of other stakeholders across the state. It serves as a framework for statewide collaboration around water planning and includes the 50 partner and 50 agency actions to support the Visions[13]. In appendix A are the action items of the "Colorado Water Plan" associated with the support of Robust Agriculture.

When it comes to Colorado agriculture, one size does not fit all, which is a major challenge when applying for federal assistance programs. In Colorado our short growing season provides its challenges, but it also offers benefits. As a vegetable farmer I would welcome the subzero temperatures in January because it was killing lots of the bugs and I would see less pest pressure the coming growing season. Of course I felt compassion for the cow calf operators who would struggle with the cold temperatures caring for their animals.

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[11] https://ag.colorado.gov/markets/publications/public-attitudes-survey-2022

[12] https://www.ers.usda.gov/data-products/ag-and-food-statistics-charting-the-essentials/ag-and-food-sectors-and-the-economy.aspx

[13] https://cwcb.colorado.gov/colorado-water-plan

As a former board member of CWCB, we often heard how challenging it was to garner federal funding. The most successful programs I have seen in Colorado are the efforts that are led at the state or county level because they know the local needs and can simplify the process. Most of us farmers and ranchers don't have the knowledge, time or expertise to apply for federal programs or grants. A prime example of a local effort that is working is a grant the CWCB provided to a grower-led group called the Colorado Agriculture Water Alliance (CAWA) for a grant titled, "Ag Drought Resiliency Program". The CWCB awarded CAWA funds to essentially go out to the farming and ranching communities to look for ag partners that wanted to try new practices and test new ideas to help with drought resiliency. CAWA made it extremely simple for the producers to apply and then CAWA essentially did all of the paperwork to secure the funding. Some of the test projects didn't work, which is probably more important to know what doesn't work and why supporting this work financially is so important so that other producers don't make the same mistakes. Another important premise for this work is how important peer to peer learning is. Oftentimes us farmers watch what our neighbor is doing much more closely than anything else.

In conclusion, I feel it is important for our Federal partners to consider:

1. The allocation of additional resources for local research, development and application of drought-resistant technologies and practices for the arid west;
2. Support of local programs that incentivize sustainable practices;
3. Investments in improving aging water infrastructure; and
4. Expansion of outreach programs that include all types of water use.

The goal of having a resilient and adaptive farming and ranching system across the arid west is a task that is of utmost importance and one where all of us need to work together. As the Agricultural Water Policy Advisor for the Colorado Department of Agriculture I am committed to work with our Tribal, Federal, State, and local governments, as well as collaborate with academic institutions, farmers and ranchers, their communities, and conservation partners across the state of Colorado and across the region. By investing in innovation, promoting sustainable practices and strengthening resilience I am optimistic that we can mitigate the impacts of drought and ensure the long-term variability of Colorado agriculture.

As you continue your important work on crafting policy solutions for drought, I hope that you commit to supporting the important and valuable locally led initiatives like those in our Colorado Department of Agriculture and our conservation partners across the state that you will hear more about today. I sincerely feel that local expertise, knowledge and

dedication have the best opportunity for developing successful programs — programs that will help us transition to and withstand a more arid climate.

The strength of Colorado agriculture is our diversity. Whether it is the high elevation pastures that are flood irrigated and then support the environment by slowing the water flows for downstream ecological functions later in the season, to highly efficient drip irrigated vegetables, each has an important role. I hope that we can recognize the importance of this diversity and the need to support our local farmers and ranchers in light of the recent COVID-19 pandemic and the risk to our society when the supply chain relies too much on the fragility of a single source

Thank you for the opportunity to provide comments today and please feel free to reach out to me anytime if you have any questions, comments and especially with ideas of what we can be doing to support our farm and ranch families. Thank You.

Appendix A: Colorado Water Plan Actions for Robust Agriculture

10 agency actions listed under the Robust Agriculture section:

2.1 Expand agricultural water conservation, education, and peer-to-peer programs that enhance innovation
2.2 Integrate capacity building efforts to support agriculture
2.3 Expand the scale of collaborative water sharing agreements
2.4 Streamline collaborative water sharing agreement guidance across agencies
2.5 Support the integration of robust agriculture into local government planning
2.6 Assess the economic opportunities of avoided buy and dry to communities, ecosystems, and recreation
2.7 Engage federal and state partners to streamline assistance for groundwater dependent regions
2.8 Streamline agricultural infrastructure funding
2.9 Assess agricultural impacts and best practices for water quality protection
2.10 Integrate soil health, water conservation, and adaptive practices that increase economic outputs with less water use

Colorado Department of Agriculture partner in other Vision Action items that include:

1.4 Coordinate funding opportunities for conservation, safety, and aging infrastructure
4.1 Create a capacity-building hub to provide accessible educational opportunities
4.5 Convene workshops on water and climate vulnerability, adaptation, and resilience
4.6 Develop an interagency framework for increasing grant funding access and opportunities
4.9 Create innovation challenges and explore an innovation accelerator
5.7 Strategically fund the Colorado Water Plan and find opportunities to leverage funding
5.8 Identify collaborative survey efforts

“Partner” actions for agriculture include:

1. Thoughtful Storage
    a. Storage to protect and enhance existing agricultural uses under an uncertain future
    b. Storage to provide supply and flexibility for augmentation plans
    c. Strategic and smaller storage facilities that meet multiple needs
2. Meeting Future Water Needs

   a. Rehabilitation of agricultural storage facilities
   b. Replacing old diversion structures
   c. Installation of modern water measuring equipment
3. Water Wise Use
   a. Conveyance efficiency improvements
   b. On-farm efficiency upgrades
   c. Lower water use cropping
4. Healthy Lands
   a. Soil health and the effective use of water
   b. Natural working land improvements
   c. Reducing erosion and improving water quality

The foundation for any of these possible actions are meeting the requirements of Colorado Water Law and compliance with Interstate Compact agreements.