

Big Ag Is Draining Colorado Dry

The American West is facing a water crisis, compounded by climate change, a history of bad policy, and a refusal to stand up to Big Agribusiness. Despite a wet winter in early 2023 providing a short-term respite, a long-term megadrought persists across the region, as groundwater storage is being depleted after decades of over-withdrawals.¹ Corporate farms remain unfazed by this fact, continuing to drain Colorado's dwindling water supplies to prop up factory farms that, in turn, worsen the climate crisis and associated drought. Colorado is ground zero for Big Ag's assault on our water and climate future, and states must halt the expansion of these mega-farms and reallocate water for truly beneficial uses.

Bad Policy Threatens Colorado River Supplies

The Colorado River is one of the most regulated rivers in the world, due in no small part to its famous interstate water agreement: the Colorado River Compact.² Established in 1922, the Compact theoretically distributes 16 million acre-feet of water annually to seven states and Mexico. The Upper Basin states of Colorado, New Mexico, Utah, and Wyoming are obligated to deliver 7.5 million acre-feet to the Lower Basin states of Arizona, California, and Nevada, and the Upper Basin can only take its shares from what remains.³ Colorado receives a quarter of the Colorado River allocations, equivalent to around 3.9 million acre-feet.⁴

The Colorado River Compact formed during a period of abnormally wet rainfall, resulting in an agreement that allocated 15 million acre-feet annually between the states. Yet in recent decades, only 12 to 13 million acre-feet flow through the river each year, further exacerbated by a treaty guaranteeing Mexico 1.5 million acre-feet.⁵ The Compact relies on fixed numbers, leaving little room for declining supplies and potentially leaving Upper Basin states unable to fulfil their obligations to the Lower Basin.⁶ Reservoirs along the Colorado River have reached record lows in the past few years, forcing the U.S. Bureau of Reclamation to begin curbing supplies to Lower Basin states.⁷

Following months of dispute, Lower Basin states came to a tentative agreement in May 2023, promising voluntary reductions of 3 million acre-feet by 2026.⁸ While sparing Colorado for now, solutions to this crisis will require all states' participation. The Lower Basin's proposal is insufficient for long-term security, cutting nowhere near enough water to restore water levels along the river.⁹

Growing Water Scarcity in Colorado

Western states like Colorado have seen larger temperature increases over the past decade than the rest of the country. Problems such as water scarcity, invasive species, and forest fires will increase alongside these temperatures. Colorado is dependent on snowpack from the Southern

Rockies, which is projected to plummet by 50 percent in this century alone. Without that steady resource, Colorado's water security is in an extremely precarious position.¹⁰

The Colorado River's headwaters begin in a small stream in northern Colorado, with the river ultimately providing 40 percent of the state's total water supply.¹¹ As it winds its way down the Rocky Mountains, much of this flow is diverted for use, with the river supplying around half of the Denver metro area's water.¹² This municipal demand is only expected to increase as population increases, leaving a deficit of millions of gallons of water in the coming decades.¹³

Alfalfa Production Abuses Colorado's Dwindling Water Supplies

Agriculture consumes 90 percent of the water used in Colorado, compared to just 7 percent for municipal sources.¹⁴ Alfalfa is a dominant crop, in terms of both production and water usage. Food & Water Watch estimates that the 1.8 million tons of alfalfa produced in Colorado in 2022 required more than 297 billion gallons of water in consumptive use.¹⁵ Consumptive use defines water that is lost through evaporation or transpiration and unavailable for future reuse, as opposed to withdrawals that may flow back into the ecosystem through runoff from irrigation.¹⁶ This is enough water to supply every Denver resident with their daily indoor water needs for 27 years.¹⁷

Eighty percent of agricultural water in Colorado comes from surface water sources.¹⁸ The state already suffers from a deficit between demand and supply for irrigation water, with around 20 percent of needs unmet — a figure that is expected to increase as temperatures rise and soils become drier. By 2050, this gap could be up to 3.5 million acre-feet each year, or 1.1 trillion gallons of water.¹⁹ The pressure that this would place on the Colorado River is untenable, and only drastic reductions in water-intensive crops such as alfalfa can resolve this tension.

Colorado farms are larger and use more water than the national average. In 2017, the state had 3,800 farms operating on more than 1,000 acres of cropland, with an average farm size of 815 acres²⁰ — nearly double the national average.²¹ And while the national average for water use per acre has steadily decreased since 2003, Colorado's average has stubbornly remained the same. This is largely because reductions in the agricultural sector are focused on efficiency, not on fundamentally changing the systems that abuse so much water to begin with. Even with these efforts, subsurface or drip irrigation — considered the most efficient irrigation systems — are utilized on less than 1 percent of the state's farms.²²

Mega-Dairies Threaten Colorado's Water Security

Colorado is also home to numerous mega-dairies^a, confining 160,700 dairy cows on factory farms.²³ Dairy cows require more water than any other domestic livestock, particularly if farmers want profitable milk production levels.²⁴ Food & Water Watch estimates that the water required for watering and washing cows on Colorado's mega-dairies totals around 5.7 billion gallons annually — enough to supply 143,600 households with indoor water supplies for a year.²⁵

^a In this piece, mega-dairies refer to operations with 500 or more cows, as this corresponds with data categories in the 2017 U.S. Department of Agriculture Census of Agriculture, which does not provide information on confinement and waste management.

Despite ongoing drought, Colorado’s factory farming industry is on the rise. The state saw the nation’s largest expansion in the number of beef cattle factory farms from 2011 to 2017, and the average dairy herd size almost doubled from 2012 to 2022, jumping to an average of 1,836. Meanwhile, the number of licensed herds dropped in the same period,²⁶ indicating a shift towards larger livestock operations at the expense of family-scale farms.

On top of their giant water use, water contamination is another significant problem with mega-dairies. Thirty percent of Colorado’s waterways are already considered unsuitable for use,²⁷ and continued mega-dairy expansion puts even more water resources at risk. Agriculture is the leading polluter of U.S. rivers and streams,²⁸ and the U.S. Environmental Protection Agency’s weak rules allow most mega-dairies and other factory farms to avoid meaningful regulation.²⁹ Manure contains nutrients valuable to cropland and is often spread as fertilizer, but the sheer amount of manure that mega-dairies produce often exceeds what cropland can absorb, resulting in over-application. This causes runoff into local waterways³⁰ and contamination of scarce groundwater resources. Domestic water well contamination from factory farms has been likened to rural America’s “own private Flint.”³¹

Conclusion

Factory farm water abuses are endangering communities and ecosystems across Colorado, creating scarcity and crisis in its wake. The state must radically transform how it thinks about industrial agriculture’s water use and rapidly scale back alfalfa production and mega-dairies. One way to achieve this goal is to strip alfalfa of its protected beneficial use status, thereby removing much of its water allocations.³² Colorado is beyond easy solutions and must be willing to take bold action to secure a safe and livable future.

Endnotes

- 1 National Oceanic and Atmospheric Administration. National Integrated Drought Information System. “Special Edition Drought Status Update for the Western United States.” January 24, 2023; Griffin, Melissa et al. “Drought monitor spells good news for California, but ‘not out of the woods’ on megadrought.” *ABC News*. March 2, 2023.
- 2 Robison, Jason et al. “Challenge and response in the Colorado River Basin.” *Water Policy*. Vol. 16, Iss. 12. March 2014 at 12 to 13.
- 3 *Ibid.* at 16 to 17.
- 4 Stern, Charles V. et al. Congressional Research Service (CRS). “Management of the Colorado River: Water Allocations, Drought, and the Federal Role.” R45546. Updated May 23, 2023 at 8.
- 5 Robison et al. (2014) at 23; Gardner, Jeff. “Deception and science in the Colorado River.” *Desert Times*. January 1, 2020; Fleck, John and Anne Castle. “Green light for adaptive policies on the Colorado River.” *Water*. Vol. 14, Iss. 2. 2022 at 2; Flavelle, Christopher. “As the Colorado River shrinks, Washington prepares to spread the pain.” *New York Times*. Updated January 31, 2023.
- 6 Sakas, Michael Elizabeth. “If the Colorado River keeps drying up, a century-old agreement to share the water could be threatened. No one is sure what happens next.” *Colorado Public Radio*. November 19, 2021.
- 7 U.S. Bureau of Reclamation. “Operation Plan for Colorado River Reservoirs.” August 21, 2021 at 1 to 2.
- 8 Flavelle, Christopher. “A breakthrough deal to keep the Colorado River from going dry, for now.” *New York Times*. Updated May 25, 2023.
- 9 Jones, Benji. “Why the new Colorado River agreement is a big deal — even if you don’t live out West.” *Vox*. May 23, 2023.
- 10 University of Colorado, Boulder. Environmental Center. “Impacts in Colorado.” Available at <https://www.colorado.edu/center/energy-climate-justice/general-energy-climate-info/climate-change/impacts-colorado>.

- 11 Hidalgo, Lisa and Kevin S. Krug. "The lifeline of the West': The Colorado River's 1,400-mile journey, explained." *Denver 7 ABC*. Updated July 24, 2021; Colorado Department of Natural Resources (DNR). Water Conservation Board. "Colorado River Basin." Available at <https://cwcw.colorado.gov/colorado-river>.
- 12 Hidalgo and Krug (2021).
- 13 CO DNR, Water Conservation Board. "Colorado Water Plan." 2023 at 148.
- 14 *Ibid.* at 41.
- 15 See Methodology in Food & Water Watch (FWW). "Big Ag Is Draining the Colorado River Dry." August 2023.
- 16 Berrade, Abdel F. and Denis Reich. "Alfalfa irrigation water management." In Pearson, Calvin H. et al. (Eds). (2011). *Intermountain Grass and Legume Forage Production Manual*. Colorado State University at 2; Dieter, C.A. et al. U.S. DOI, U.S. Geological Survey. "Estimated use of water in the United States in 2015." Circular 1441. 2018 at glossary and 59 to 61.
- 17 FWW analysis of CA S.B. 1157 § 679 (2022); U.S. Census Bureau. "QuickFacts Denver City, Colorado." Accessed May 2023.
- 18 CO DNR (2023) at 46.
- 19 *Ibid.* at 47 and 148; U.S. Environmental Protection Agency (EPA). [Fact sheet]. "What Climate Change Means for Colorado." EPA 430-F-16-008. August 2016.
- 20 USDA. 2017 Census of Agriculture. Table 9. "Harvested Cropland by Size of Farm and Acres Harvested;" Ott, Rodger. USDA. Colorado Field Office, National Agricultural Statistics Service (NASS). "Colorado Agricultural Statistics 2022." 2023.
- 21 USDA. Economic Research Service. "Farming and farm income." Available at <https://www.ers.usda.gov/data-products/ag-and-food-statistics-charting-the-essentials/farming-and-farm-income>. Accessed May 2023.
- 22 Smith, Jared. "Report: Colorado's farm water use exceeds national average, despite efforts to conserve." *Water Education Colorado*. February 19, 2020.
- 23 USDA NASS. 2017 Census of Agriculture. Available at <https://www.nass.usda.gov/Publications/AgCensus/2017/index.php>. Accessed April 2023.
- 24 Wright, Allison. "Water management practices on dairy farms." University of Minnesota Extension. July 12, 2022.
- 25 See Methodology in FWW. "Big Ag Is Draining the Colorado River Dry." August 2023.
- 26 Glibert, Patricia M. "From hogs to HABs: Impacts of industrial farming in the US on nitrogen and phosphorus and greenhouse gas pollution." *Biogeochemistry*. Vol. 150, Iss. 2. July 22, 2020 at 154; FWW analysis of USDA NASS. Milk Production Report. February 20, 2013; USDA NASS. Milk Production Report. February 22, 2023.
- 27 CO DNR (2023) at 149.
- 28 EPA. Water quality assessment and TMDL information, national summary tables and charts. Available at https://ofmpub.epa.gov/waters10/attains_index.home. Accessed February 2018.
- 29 Pew Environment Group. [Fact sheet]. "Animal Agriculture and the Clean Water Act." December 1, 2010 at 1 to 2.
- 30 FWW. "Factory Farm Nation: 2015 Edition." 2015 at 21.
- 31 Healy, Jack. "Rural America's own private Flint: Polluted water too dangerous to drink." *New York Times*. November 3, 2018.
- 32 Wicks, Noah. "Colorado River water officials prepare to negotiate post-2026 guidelines." *Agri-Pulse*. June 14, 2023.