

Oregon's Mega-Dairies, Mega-Pollution and Mega-Climate Consequences

Massive dairy factory farms, known as mega-dairies, produce enormous amounts of heat-trapping gases that are warming the planet and fueling Oregon's historic drought and wildfires. In Oregon alone, mega-dairies are responsible for spewing more than 17 million kilograms of planet-warming methane gas every year — equivalent to the yearly emissions from driving 318,000 passenger cars.¹ The air and water pollution and climate chaos that these facilities create are hurting communities now and will do so for years to come. We need a moratorium on new and expanding mega-dairies to ensure a safe and livable future for all Oregonians.

Water Contamination and Environmental Justice

Food & Water Watch is calling for a moratorium on new and expanding mega-dairy operations, defined as dairies confining more than 2,500 cows. These industrial operations confine animals in lots or pens instead of raising cows on well-managed pastures, which offers the opportunity to significantly reduce greenhouse gas emissions.² Oregon has 11 of these mega-dairies, which together house more than 100,000 cows (as of December 2021). Even more facilities are permitted to be mega-dairies but are not yet operating at full capacity.³

The largest mega-dairy in operation in Oregon is Threemile Canyon Farms (TMCF). Located in Boardman, TMCF houses more than 55,000 dairy cows just for milking, as well as over 14,000 additional animals that serve as “fattening cattle” on feedlots.⁴ As mega-dairies like TMCF open their doors, smaller, family-scale dairies disappear across the state, unable to compete with these factory operations.⁵

Mega-dairies like TMCF are often located in rural, predominantly Latinx communities — making this an issue of environmental racism and justice.⁶ Morrow County in eastern Oregon houses nearly 70 percent of all Oregon's cows living on mega-dairies.⁷ The county has nearly triple the proportion of Hispanic/Latinx residents as the state as a whole — 38 percent compared to 13 percent, respectively. In the city of Boardman, home to TMCF, more than two-thirds of residents are Latinx.⁸ Because of structural racism and a lack of government regulation, these communities are burdened with contaminated air and water caused by pollution from TMCF and other factory farm operations.⁹

Mega-dairies have wreaked havoc on communities in eastern Oregon for years. Nitrate from fertilizers and animal waste infiltrates groundwater and threatens the health of those who drink it. The Oregon Department of Environmental Quality (DEQ) identified the Lower Umatilla Basin in northeastern Oregon (home to TMCF and several other mega-dairy facilities)¹⁰ as having dangerously elevated nitrate levels. Groundwater quality sampling done in 2015 by DEQ found that nearly half of all wells tested had nitrate concentrations that the U.S. Environmental Protection Agency has determined “present serious health concern(s) for infants and pregnant or nursing women.”¹¹ Nitrate in drinking water also increases the risk of thyroid disease and several types of cancer.¹² Communities in the Lower Umatilla Basin rely heavily on groundwater, for both public water systems and private wells.¹³ Years of testing and voluntary plans to reduce nitrate concentrations in groundwater have failed to address the problem in this region.¹⁴

The notorious Lost Valley mega-dairy, which housed a staggering 30,000 cows, was forcibly shut down after repeated violations that threatened local drinking water.¹⁵ Despite the disaster at Lost Valley, another company, Easterday Dairy, is awaiting permit approval to open another nearly 30,000 cow mega-dairy facility on the same Lost Valley site.¹⁶ The Easterday Facility would produce close to 6 million cubic feet of solid manure a year and almost 12 million cubic feet of wastewater, threatening nearby groundwater and air quality.¹⁷

Catastrophic manure spills can and do happen in Oregon. In April 2017, Tony Silveira Dairy released 190,000 gallons of untreated manure into the Tillamook River during a manure tank malfunction.¹⁸ In July 2019, more than 300,000 gallons of manure spilled into the same river after an aerobic digester with manure from dairy farms malfunctioned. These spills threaten fisheries, water quality and people’s health.¹⁹

Mega-Emissions from Mega-Dairies

Due to the intensive confinement of animals on factory farms, these facilities produce more manure, more pollution and more planet-warming gases than smaller farms. The manure management practices used by larger operations also increase emissions.²⁰ One estimate found that one ton of manure from large dairy farms produces more than twice as many heat-trapping emissions as one ton of manure from small dairy farms.²¹ Mega-dairies typically flush untreated manure and waste into large cesspools, called lagoons.²² This practice of mixing wet waste and solid manure in lagoons for long periods of time, a common occurrence on industrial-scale farms, is a major source of methane.²³ Manure is stored in these lagoons until it is applied as fertilizer on fields. But even then, these operations often produce much more manure than crops can absorb, resulting in over application and runoff into local waterways.²⁴

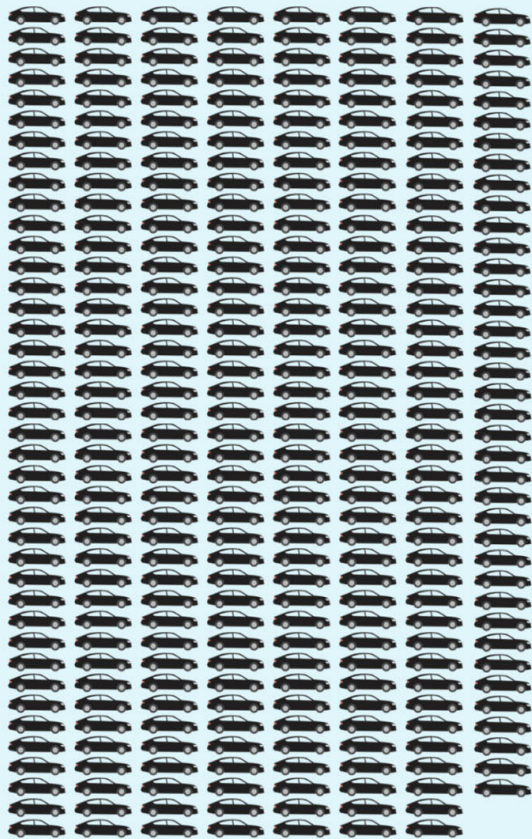
FIG. 1: Oregon's Methane Emission Equivalencies – Cows Vs. Cars

Annual methane emissions from Oregon's mega-dairies combined...



produce the CO₂ equivalent of

318,000 passenger vehicles.



 = 1,000 vehicles

Nationally, air pollution from farms may be linked to 17,900 deaths each year, and pollution from food production kills more people than pollution from coal plants.²⁵ The health of those who work on large dairy farms is particularly at risk from inhalation of pollutants. Researchers have found that dairy workers experience myriad lung conditions such as asthma, chronic obstructive pulmonary disease (COPD), chronic bronchitis and cancer.²⁶

Pollutants of concern from large dairy farms include ammonia, hydrogen sulfide, methane, volatile organic compounds, nitrogen oxides, particulate matter and odors.²⁷ Methane and nitrous oxides are powerful climate-warming gases.²⁸ Methane is released during the cow's digestive process and during the storage and management of manure on factory farms, due to the farms' practice of mixing liquid and solid wastes.²⁹ In Oregon, agriculture is the leading source of methane emissions.³⁰ Food & Water Watch conservatively estimates³¹ that the 11 mega-dairy facilities operating in the state produce over 17 million kilograms of planet-warming methane every year.³² This is equivalent to the emissions from 318,000 passenger vehicles³³ — more than all the registered passenger vehicles in Marion County combined.³⁴

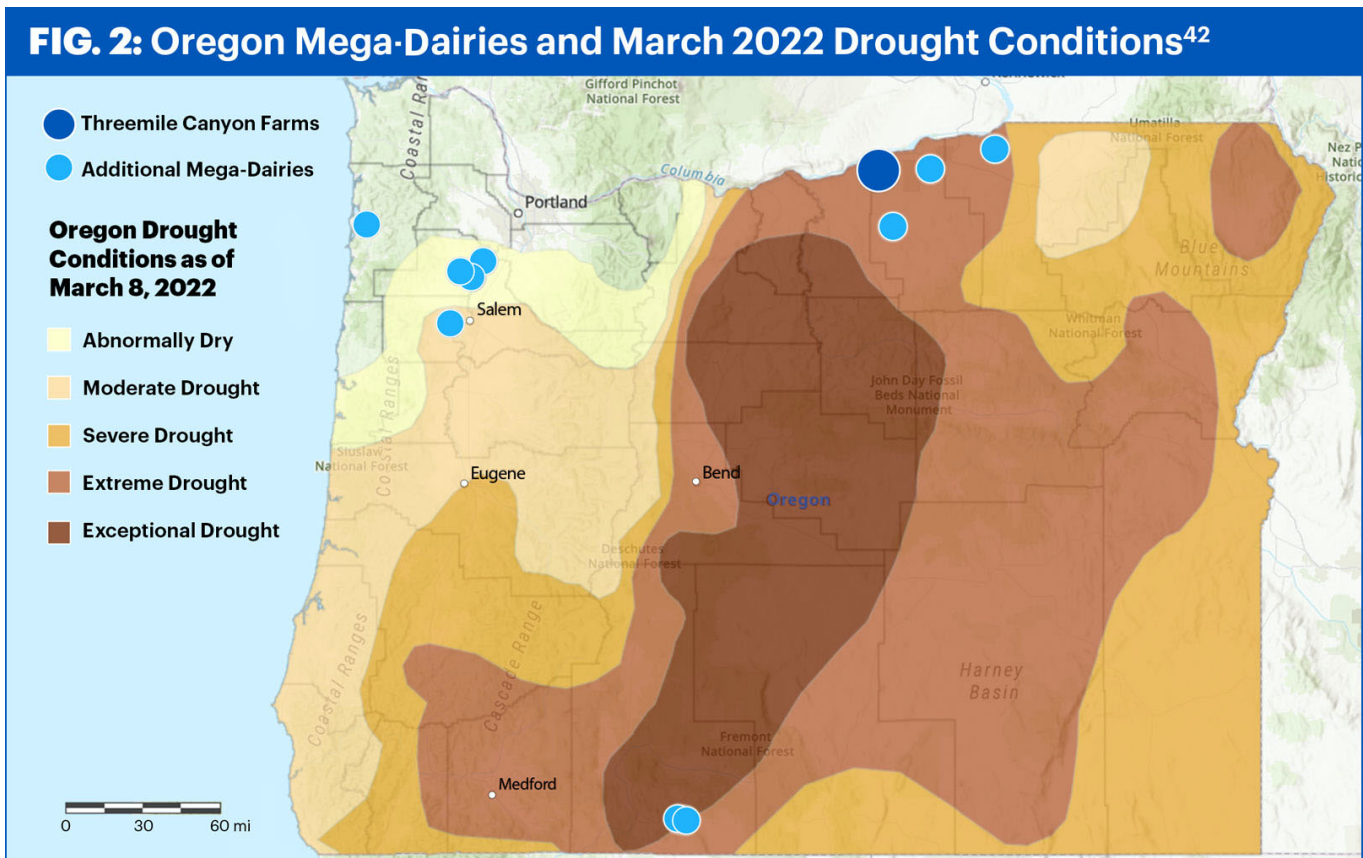
Mega-consequences

Oregon is already experiencing the impacts of a changing climate. Average annual temperatures have increased by 2.2 degrees Fahrenheit compared to temperatures in 1895 and are expected to rise as much as 8.2 degrees Fahrenheit by the 2080s without significant emissions reductions.³⁵ Hotter temperatures and climate

change-induced heat waves particularly threaten the health and safety of farm workers across the agricultural industry in Oregon.³⁶ Warmer temperatures also lay the foundation for a future plagued by extreme droughts and massive wildfires.

Like much of the western United States, Oregon is experiencing a historic mega-drought. The frequency and intensity of droughts have been increasing due to human-caused climate change, resulting in the 2000-2022 period being the driest 22 years Oregon has seen in over 1,200 years.³⁷ As of March 2022, 75 percent of the state was experiencing severe drought, 16 percent of which was classified as exceptional drought (See Figure 2).³⁸ Some scientists are now warning that mega-droughts are the new normal in Oregon and other parts of the west, suggesting that this region may be entering a perpetual state of drought.³⁹

Year-round dry conditions, exacerbated by the water-intensive practices of mega-dairies, have major consequences for agriculture, drinking water, fisheries and wildfires. The Chinook Salmon run is on the verge of collapse; limited water and disputed allocations mean that Indigenous communities are facing both the collapse of cultural resources and increased racism in disputes over water allocation.⁴⁰ And households in rural communities across the state are seeing their drinking water wells run dry.⁴¹



SOURCES: ESRI, HERE, GARMIN, FAO, NOAA, USGS, EPA, NPS

Water Use During a Drought

Operating industrial-scale mega-dairies uses a tremendous amount of water. Water is needed to grow feed for the cows, move manure into storage systems, wash the cows and buildings, and provide cows with drinking water. Food & Water Watch estimates that Oregon's 11 mega-dairies consume **8.2 million gallons of water a day** just for drinking water and washing cows and buildings.⁴² This amount of water could meet the average indoor daily water needs of over 124,000 Oregonians.⁴³ In a year, this is enough water to fill nearly 5,000 Olympic-sized swimming pools.⁴⁴

Wildfires


Planet-warming gases released by mega-dairies contribute to a drier, hotter climate, which alongside a history of poor land management policies designed to limit natural burning is leading to catastrophic wildfire conditions in Oregon.⁴⁵

Studies predict that this will only worsen if we do not reduce our greenhouse gas emissions.⁴⁶

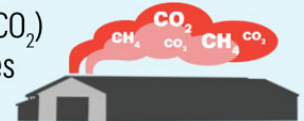
Wildfires themselves also fuel climate change; one estimate puts Oregon's wildfire emissions during the summer of 2021 at around 17 million tons of carbon dioxide — the warming equivalent of driving 3.7 million passenger cars for one year.⁴⁷ Mega-dairies augment this dangerous feedback loop where mega-dairy emissions contribute to warming, which increases the intensity and frequency of wildfires, which produce lots of carbon dioxide emissions, which in turn fuels more warming.⁴⁸

Exposure to wildfire smoke increases the risk of disease and death.⁴⁹

FIG. 3: Oregon Mega-Dairies' Dangerous Emissions Feedback Loop

 Mega-dairies use a tremendous amount of water to grow feed, water and wash cows, and move manure to storage systems.

Planet-warming gases like carbon dioxide (CO₂) and methane (CH₄) released by mega-dairies contribute to a drier, hotter climate.



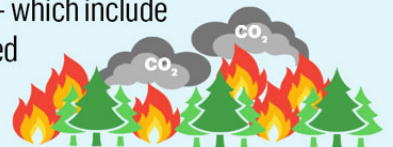
Alongside poor land management policies, hotter, drier climate is leading to catastrophic wildfire conditions in Oregon.

The resulting wildfires continue to fuel climate change by releasing additional CO₂ into the atmosphere at dangerous levels.



Mega-dairies augment this dangerous feedback loop with their continued emissions further increasing warming, which in turn increases the frequency and intensity of wildfires.

This ongoing cycle not only fuels climate change, but also affects the well-being of residents who are increasingly exposed to the health hazards associated with wildfires — which include everything from air pollution-induced lung and heart problems to anxiety and post traumatic stress disorder.



Wildfires release harmful particulate matter — a dangerous pollutant associated with heart disease, respiratory illnesses, reduced lung function in children and premature death.⁵⁰ Smoke from wildfires may compound the devastating impacts of the COVID-19 pandemic; studies have linked exposure to fine particulate matter to higher COVID-19 infection and mortality rates.⁵¹ Wildfires are also associated with negative mental health outcomes like anxiety, depression and post-traumatic stress disorder.⁵²

People of color, people with fewer resources, farmworkers, unhoused people and first responders often face higher risks of exposure to air pollution from wildfire smoke.⁵³ In Oregon, wildfires (compounded by the COVID-19 pandemic) “revealed substantial, pre-existing inequities in access to social, physical environmental, cultural, and economic support systems.”⁵⁴ Black and Indigenous people in Oregon are already hospitalized for asthma at much higher rates than other race and ethnicity groups, according to the Oregon Health Authority. Wildfire smoke will likely continue to exacerbate this disparity.⁵⁵

Profiting From Pollution: Factory Farm Gas Is Not a Solution

Rather than address the sources of climate pollution, some dairy corporations and state officials are making plans to further burden frontline communities with the dangerous false solution of factory farm gas. Factory farm gas is produced when mega-dairy facilities use bacteria to break down constituents of manure into gas that is primarily composed of methane.⁵⁶ Bacteria and other microorganisms “eat” away at manure through a process called anaerobic digestion, producing methane, carbon dioxide and other gases.⁵⁷ This gas can then be treated, compressed and mixed with fracked gas and pumped through leak-prone pipelines.⁵⁸ Despite claims that digesters reduce emissions,⁵⁹ burning factory farm gas releases carbon dioxide and other pollutants including smog-forming nitrogen oxides, ammonia and hydrogen sulfide,⁶⁰ potentially offsetting other reductions in greenhouse gases.⁶¹

Rural communities like those in Morrow County are already overburdened by pollution from industrialized agriculture and mega-dairies. Factory farm gas threatens to make this problem worse. It entrenches our reliance on fossil fuels by building infrastructure such as pipelines.⁶² In many parts of the United States, communities on the frontlines of mega-dairies and factory farm gas infrastructure are disproportionately people of color and/or low income. They face serious physical health, mental health and daily life impacts living near industrialized agriculture — and now factory farm gas facilities exacerbate these risks.⁶³

Mega-dairies profit from the dirty factory farm gas business while ignoring the problem of pollution and endangering farmers and frontline communities.⁶⁴ Facilities in Oregon can reap profits from multiple subsidy and tax-credit programs both in Oregon and in California. For

example, TCMF and its digester project received \$7.6 million in tax credits from Oregon's previous Bovine Manure Tax Credit program,⁶⁵ another \$10 million in tax-exempt financing from Oregon Private Activity Bonds and potentially millions more from the California Low Carbon Fuel Standard program.⁶⁶ Oregon should require mega-dairies to reduce pollution, not incentivize them to expand despite known harms to Oregon's environment and communities.

The State Has Failed to Act

Recent reports from the United Nations stress that reductions in methane from sources like mega-dairies and factory farms are key in slowing climate chaos and will produce climate benefits in the short term.⁶⁷ Yet, the DEQ has failed to adopt regulations for mega-dairy air emissions — despite a 2007 state law directing it to work with the Oregon Department of Agriculture to address this pollution.⁶⁸ Following the enactment of this law, the state convened a Dairy Air Quality Task Force, which produced consensus recommendations to adopt regulations to reduce mega-dairy air pollution.⁶⁹ The state has failed to act on any of the Task Force recommendations for over a decade.

Governor Brown's March 2020 Executive Order further stated that the Oregon Environmental Quality Commission (EQC) must use "any and all discretion vested in them by law" to achieve the state's greenhouse gas reduction goals.⁷⁰ Yet although the EQC has authority to regulate mega-dairy emissions, the resulting Climate Protection Program Rule approved in December 2021 neglected to address emissions from mega-dairies.⁷¹

Conclusion and Recommendations

The numerous problems that mega-dairies create and the incalculable damage that they inflict on Oregon are not going away without strong action from the state's leaders. Touting factory farm gas as a solution is only entrenching pollution among frontline communities. Oregon's legislature must take strong action to protect our air, water and health, beginning with a moratorium on new and expanding mega-dairies.

Food & Water Watch recommends that Oregon:

- Enact an immediate moratorium on new mega-dairies, and on the expansion of existing ones;
- Adopt regulations requiring mega-dairies to reduce their emissions of methane and other harmful air pollutants; and
- Reject the incentivizing of air pollution through factory farm gas and focus on real solutions to climate change like wind and solar.

Endnotes

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