CHALLENGES AND PROMISES OF THE AGRICULTURAL SECTOR IN THE WEST TODAY

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CHALLENGES AND PROMISES OF THE AGRICULTURAL SECTOR IN THE WEST TODAY

By

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Thesis

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Challenges and Promises of the Agricultural Sector in the West Today

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The transition from hunter-gatherers to a sedentary, agrarian based society was a pivotal point in history, fundamentally altering humanity’s trajectory. Early human’s domestication of plants and animals paved the way for modern civilization and drastically changed the way we lived and interacted. With agriculture, humans could invest more time into other activities besides procuring food while simultaneously being able to support increasingly large communities of people. Villages, city-states and, ultimately, states were formed – helping give rise to more complex social structures.

Until recently, agriculture has been the main economic backbone of every civilization. In 1970 in the United States, 95 percent of Americans lived a rural lifestyle. These days, not even 20 percent do and just one percent are farmers and ranchers. For those select few still committed to the industry, agriculture is often more than just a job or economic endeavor. It is a way of life and a purpose. Farmers and ranchers take pride in having a deep connection to an agricultural heritage marked by an intimate relationship with the land and animals.

For something seemingly so simple, agriculture – and food – has a nuanced role in our culture and society today. In some regions of the United States agriculture still serves as a cornerstone of the economy and way of life. However, into the 21st century, a variety of different issues threaten agriculture and those involved in the industry.

The theme of this portfolio is to examine different challenges and promises the agricultural sector faces today in the West – particularly looking at Montana and Idaho. The stories will look at social, economic and emotional aspects of agriculture during a time where the industry seems to be losing its place of prominence.

One story will explore two troubling trends plaguing Montana: aging farmers and the loss of productive farmland. According to the USDA’s Census of Agriculture, in 2017, the average age of a farmer in Montana was 58 – just above the national average. Only eight percent of farmers in Montana are under the age of 35. Over half of all the ag producers in Montana are either close to retirement age or past it. That same report also found that Montana, in comparison to the rest of the country, suffered the third highest decline in farmland between 2012 and 2017 – losing over 1.6 million acres.
Another story will look at a 2020 study published by Montana State University, which pertains to Montana farmers’ and ranchers’ perceptions of climate change and how that is impacting their mental health. With the world heating and chaotic weather patterns becoming the norm due to anthropocentric climate change, researchers have pointed to the negative impacts and challenges that this poses to agricultural productivity – a phenomenon that is directly connected to farmers’ and ranchers’ livelihoods. More than other realms, farmers and ranchers are more directly connected to the land, climate and weather. This story will examine the different ways that climate change is affecting farmers and ranchers by focusing on an often-overlooked aspect of the issue – how it affects this demographic’s mental health.

The third story for this portfolio will look at soil degradation, water scarcity and regenerative agriculture trends in the state of Idaho. Idaho is the top producer of potatoes in the country and, partly due to irrigation, is the third-largest water user in the nation as well. Agriculture has a major impact on Idaho’s economy, resources and people. Globally, an estimated 95% of the world’s food is grown in the uppermost layer of soil, called topsoil, which is created over a process that takes hundreds of years. However, due to conventional farming practices, about half of the earth’s topsoil has been wiped out in the last 150 years. At this rate, the planet is on track run out of necessary soil in just an estimated 60 years. Protecting and regenerating soil on cultivated farmland is of the utmost importance to help feed the world into the future. A system of farming principles and practices called regenerative agriculture, which is centered on rehabilitating and enhancing the entire ecosystem, could be crucial in helping to revitalize rural farming areas and reverse the rapid loss of topsoil.
Aging Farmers, Vanishing Farmland

As young people struggle to get their footing in Montana’s agriculture industry, development threatens the state's farming future.

Hugh Spencer began learning the ins and outs of his family’s poultry farm business in upstate New York while just a child. His father gave him some chicks as a present on his eighth birthday. For the most part, Spencer has been raising chickens ever since.

“I enjoyed the physical labor and the day in, day out aspect of continually doing the chores,” he said. “I loved it. It just fit my personality. I never minded going out to the barn every day to pick up eggs.”

Spencer later migrated out West. In 1981, toward the tail end of his 20s, he and his wife, Vicki, purchased an 80-acre plot of land outside Plains, Montana. Nestled near the state’s western border in Sanders County, the town of Plains — with a population just over a thousand people — hugs the Clark Fork River and is tucked between the Bitterroot Mountains to the south and the Cabinet Mountains to the north.

The husband-and-wife duo built three chicken barns on the property shortly after purchasing the plot, and initially ran a business producing “hackle” — chicken feathers for fly fishing — before shifting their operation into a full-time egg production farm with free ranging chickens. As members of an agricultural cooperative, they sell about 50 percent of their eggs locally, in Sanders County. The rest are distributed across Montana and Idaho.

Throughout the years, business has been good, and farming has provided Spencer with an unparalleled quality of life. “It’s been wonderful,” he said. “I’d do it all over again. I enjoyed the lifestyle. I enjoyed being able to be outdoors a lot. I enjoyed being able to drop things and do things with my kids that were important to them.”

But more than six decades after his father gifted him those first birds, Spencer, now 69, has set his eyes on retirement. As an older farmer in Montana, he is not alone — some two thirds of the state’s agricultural workers are over the age of 55. Many, including Spencer, are trying to sell their farms to fund their golden years. In a booming real estate market, they are finding that young prospective farmers can rarely afford to pay market price for their land. That means that the highest bids often come from developers looking to convert farmland to housing, a reality that has local food and farm advocates worried for the state’s agricultural future.

“Ideally, I’d like to see it stay as a farm. But if somebody comes through with sufficient funds to buy it who has different ideas,” Spencer said, “so be it.”
Agriculture has long shaped Montana’s identity and its landscape, especially since White settlers began moving into the region in the mid-nineteenth century. By the early twentieth century, ranches and farms dotted much of the state’s expansive countryside. Many of these operations were ushered in through the Homestead Acts, which allowed thousands of settlers to lay claim to land stripped from Native American tribes so long as they “improved” it.

The state’s commitment to agriculture was further ingrained in its constitution, which requires cities and counties to not only protect agriculture but also develop and enhance it. To this day, communities rely heavily on grain production and cattle ranching, upholding agriculture as a cornerstone of Montana’s economy and way of life.

This farming culture, however, is facing ever-pressing challenges. As an industry, agriculture is marked by uncertainty and unpredictability, its workforce forced to adapt to economic, political, social, and environmental forces outside of their control. Volatile prices and market changes can fracture any sense of economic security, and unforeseen events can quickly curtail routine and production. The Covid-19 pandemic, for example, led to severe labor shortages, and climate change is expected to threaten thousands of American agricultural jobs in the coming decades as extreme weather events like drought, flooding, and wildfires become more common.

These challenges are compounded by the high costs of doing business and the thin profit margins: Roughly half of America’s two million farms lose money every year, and total farm debt in 2021 was expected to be $443 billion, according to the USDA.

Given all this, perhaps it is no surprise that the number of farmers is declining across the United States. The US Department of Agriculture’s (USDA) 2017 Census of Agriculture found that the number of “primary producers” and farms dipped from 2,109,303 to 2,042,220 between 2012 and 2017. According to Headwaters Economics, a nonprofit research group based in Bozeman and Helena working to improve land management decisions, farm employment in Montana shrank by nearly 20 percent between 1970 and 2019.

“The number of people that are actually able to make a living, and a good one, in direct production agriculture is a shrinking portion of the population,” said Zach Brown, who served three successful terms as a member of the Montana House of Representatives representing Gallatin County from 2014 to 2020 before being elected to the Gallatin County Commission. Brown has also worked for a nonprofit focused on the development of Montana’s rural communities. “And the margins are thinner and thinner, he said. “This ultimately means less people on the land and potentially less
people in rural communities doing the work.” As aging farmers retire, the number of people farming could shrink even further.

According to the USDA’s 2017 census, more than a third of Montana’s ag producers are 65 or older, with another third closing in on retirement age — between 55 and 64. A similar proportion have hit retirement age across the nation: 40 percent of US farmland is owned by people 65 and older. Many farmers lack heirs interested in taking over the family business. That’s the case for Spencer, whose son sought out a social work degree, and whose daughter is a program coordinator for a children’s therapeutic group home. And even when children are interested in farming, handing down the family operation leaves farmers with nothing to live off in retirement — their assets are tied up in their land and farm.

All of which means that in order to retire, many farmers must sell. Whom they sell to could make all the difference for Montana’s farming future.

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House after house juts up against farmland along the suburban fringe of west Kalispell, a city in northwest Montana’s Flathead County with a population just north of 24,000 people. The subdivision is one of many that have been constructed in Montana in recent years amid an ongoing real estate boom that has eaten into the state’s prime agricultural lands.

Montana lost over 1.6 million acres of farmland between 2012 and 2017. It had the third highest loss for any state in the country during that period, though the trend extends beyond its borders: The USDA’s 2017 census revealed a significant loss of farmland throughout the US. Much of this disappearing farmland and ranchland in Montana and elsewhere is paved over and converted to urban uses, lost forever to development. According to the American Farmland Trust, which works to preserve agricultural land and promote environmentally friendly farming, agricultural land in the US is being converted at a rate of 2,000 acres per day.

The impetus behind this rapid rate of land conversion comes down to economics. Land is expensive. Moreover, in Montana specifically, demand for land has grown substantially in recent years. “Almost all land in Montana has been priced higher than ag values for a while now,” said Andrew Rahn, the owner and creator of Montana Land Source, a website that tracks live market statistics of land prices in the state. “Land values have separated from production retention because Montana has kind of been discovered — quote, unquote — for a good while now.”
Data from Montana Land Source shows that Montana has seen a steady rise in the average price-per-acre of land for sale in the last several years. The median sale price in 2019 was $1,087 per acre. In 2021, that number has jumped to $1,640. However, these numbers can vary dramatically. In parts of Montana primed for development, an acre of land can be worth tens of thousands of dollars, if not more. “If it is a property that is easily hooked into city services, we’ve seen land at $100,000-plus an acre for prime-development land. That’s the extreme high,” Rahn said.

A recent influx of out-of-state buyers is exacerbating the situation. That includes those fleeing expensive housing markets in places like California, as well as urbanites looking for luxury homes and hobby ranches.

“All real estate in Montana is sought after by people from all over the country,” said Hermina Harold, the executive director of Trust Montana, a statewide community land trust committed to keeping urban and rural areas livable in the state. “That just creates a situation where a lot of local wage earners and local people are always competing to purchase property with people who may have higher wages and people who want to come here and have a second home or a ranch or another property.”

“There’s a history in Montana of people with outside money coming in and buying things up, and then it kind of dies off for a while, and then it happens again,” added Kristin King-Ries, a private practice attorney representing community land trusts around the Northwest. “So, it’s not new.” But, she noted, “We’re in the middle of it now. Big time. This is the most I’ve seen since I’ve been here, which is 20 years.”

King-Ries was referring to Montana’s pandemic-spurred real estate boom. Since 2020, she said, the number of people flocking to the state has mushroomed as people from around the country, seeking less congested areas and now able to work remotely, have turned their sights on Montana. New arrivals can often afford to pay prices that, for the most part, can’t justify agricultural uses of the land. As a consequence, real estate and land prices in Montana are “skyrocketing,” according to Harold. In Gallatin County, for example, the median housing price rose from $450,000 in January 2020 to $560,000 in January 2021. The construction of new homes has also spiked in the last few decades, a phenomenon particularly noticeable in the western half of the state. Of all the homes in Montana, one quarter were built since 2000.

“In order to retire, there’s pressure on some farmers, if they’re in a high development area, to resell their farm for the highest price possible,” said Harold.

In this market, lack of access to capital can halt younger would-be farmers in their tracks. They simply can’t save enough for a down-payment or find a bank that will give them a loan.
“Development is threatening the future of agriculture,” said Brown. “Land prices and market values are such that agriculture has a very difficult future in these places that are urbanizing.” These trends and their consequences are easily seen in Montana’s more urban regions. But the state’s rural areas are also experiencing the ripple effects.

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Spencer’s small farm, home to roughly 6,000 chickens, is an anomaly these days. In comparison, one of Spencer’s good friends living in one of Montana’s Hutterite colonies — communal farms operated by German-speaking Anabaptists — recently put up a barn that holds about 75,000 birds.

“Egg production right now, which is what I’m in, what my father was in, 90-something percent of the eggs [in the country] are produced by 60 company farms,” Spencer said.

This trend towards industrial operations, too, isn’t unique to Montana: At the same time that America is losing family farms to development, large corporate farms are increasingly dominating and consolidating the agricultural sector, making use of centralized processing facilities and producing inexpensive products to be shipped all over the country and abroad. According to data from the USDA, between 2012 and 2017, the number of corporate-owned agriculture operations increased by roughly 10 percent. The number of operations owned by an individual or family decreased by the about the same percent during that period.

Regarding this situation, Spencer is a realist. “I don’t know if it’s a problem. It’s reality,” he said. “Food is still going to be available. Is it going to be from family farms or corporate agriculture? It’s going to be more and more corporate agriculture. Large corporations are increasingly taking over more and more, have been for a long time.”

Still, the transformation of America’s agricultural system is not without consequence. Smaller farm and ranch operations contribute considerably to local economies by spending money in the immediate community, selling locally, and creating local jobs. Rural communities suffer as the viability of the agricultural sector weakens and employment opportunities through farming diminish.

“When you buy something at Walmart, none of that profit, none of that dollar, stays circulated in our economy, right? It goes to the corporate headquarters,” said Bonnie Buckingham, executive director of the Community Food & Agriculture Coalition (CFAC, a Missoula-based nonprofit working to create a viable local and regional food system in Western Montana. “There’s also community values and community connection. When people are connected to their community through food, through purchasing food from a farmer or taking part in a farmer’s market, those types of activities build stronger connections within the community.”
Smaller operations are also often more environmentally friendly — they are less likely to use high volumes of toxic pesticides, and more likely to support both crop and ecological diversity. And they tend to perform better from an animal ethics standpoint. Spencer, for example, feeds his chickens a 100 percent vegetarian diet and raises his birds in a cage-free setting.

When farms like Spencer’s are lost entirely to development, that means an irreversible loss of soil as well. Only a small percentage of the topsoil in Montana is suitable for agriculture. CFAC estimates that just 8 percent of Missoula County’s land base, for example, contains soils that are agriculturally important. That soil was generated over thousands of years — to create a mere three centimeters of topsoil takes approximately a thousand years.

Much of that soil rests along Missoula’s valley floor — exactly the same place real estate developers are eying. If it is paved over, that soil can’t perform key ecological functions like growing food, holding water, and absorbing carbon, an increasingly critical ecosystem service as policy-makers scramble to curb global warming.

“If we don’t preserve what is currently there, then we just lose it. Viable, productive, or [potentially] productive soils, which could be a field that is grazed with horses or just left to grow grass, those soils are preserved in something like that for the future,” said Buckingham. “Whereas if there’s a house on it or industry — if it’s disturbed and subdivided — then we no longer have that ability to grow food on it.”

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In an attempt to combat some of the agricultural challenges facing the state, nonprofit organizations and government officials have found innovative ways to step up and take action.

Trust Montana, for example, is working to permanently preserve Montana’s farmland. While the organization previously focused primarily on preserving affordable housing, in May of 2020, it partnered with two other organizations — Agrarian Trust and Vilicus Training Institute — to establish the Montana Agrarian Commons. The Commons will acquire conservation easements that restrict non-agricultural development of land, hold that land in trust for the community, and lease it to beginning farmers at affordable prices. An Agrarian Commons program will also create a unique selling option for retiring farmers and ranchers who want their land kept in agriculture and stewarded responsibly.

“Agrarian commons are designed to hold land in perpetuity for the use of farming, and then the farmers have long-term leases,” said King-Ries. “And we’re looking for ways for those farmers to be able to build wealth, build equity, just the same way a homeowner
or a landowner would without having the land be sold at market prices, without having the land be a commodity itself.”

CFAC has taken another approach, creating a website, Farm Link Montana, to help connect new farmers with retiring ones who are selling their land. Mary Ellis, the new farmer programs coordinator for the coalition’s Beginner Farmer and Rancher Program, described it as a “kind of matchmaking service.”

“The retiring farmer might be able to work with them a little bit on helping them slowly gain access to more acres or do some sort of unique partnership or lease agreement,” Ellis said. “So, it hopefully makes it just a little bit more accessible to those beginning farmers that are trying to start an operation.”

Ellis estimated between two and five matches move beyond a basic inquiry phase each year. “It seems like a small number, but for our program we see that as a pretty big success considering all the other factors in play,” she said.

CFAC’s “Field Tested. Farmer Approved.” program awards grants of up to $5,000 per farm to support new farmers as they navigate the early phases of their careers. The coalition also offers small loans for agricultural operations in partnership with Kiva, a nonprofit that crowdfunds loans for people creating social impact in their communities.

Zach Brown, of the Gallatin County Commission, has similarly worked to help early-career farmers confronted with financial barriers. In 2019, the Montana Farmer Student Loan Assistance Program bill he authored was signed into law. Through the program, the State Department of Agriculture pays off up to 50 percent of young farmers’ and ranchers’ student loans, debt which can be a large hinderance for those pursuing a life on the land.

“Basically, what it does is just provides an application process where a young farmer or rancher can apply to the state for a student loan assistance program,” Brown said. “So, kind of helping repay their student loans as part of their getting back to the farm and ranch process.”

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Morgan Rose was part of the first group that received loan repayment assistance through the Department of Agriculture program. A fourth-generation Montana rancher, Rose was born and raised in Dillon, a small town in southwest Montana with a population around 5,000. “There’s never been a moment in my mind where I thought I would do anything else besides production agriculture,” she said.

After graduating from Montana State University in Bozeman, Rose, along with her husband, Ty, fought tooth and nail to make a living in agriculture. They caught a break
when a cousin offered them the opportunity to live on a ranch in eastern Montana. In return for running the property, they could run their own cattle there free of charge.

Even with this stroke of good fortune, ranching would have proved financially challenging for Rose had she not received the student loan assistance — she simply wouldn’t have had enough money to begin paying off what she owed. “Life changing is not even an understatement of what that program has done,” she said. “I can’t even put into words what it means, what it does, how much it’s helped out [our] operation, because just having that little bit of financial breathing room is unquantifiable.”

Still, finding financial success has proven to be a difficult journey for Rose and her husband. She readily admitted her future — and the future of other small ranchers and farmers in Montana — is far from secure.

“There are days that I stand out in our cattle corral, and I just thank God every day that I get to do it. I think when you live this lifestyle, that’s all you can ask for, you just have to live it day by day,” Rose said. “When you look down the road, it does get very pessimistic and very scary and ridiculously overwhelming because there aren’t any ‘for-sures.’”

Link to published story:

https://www.earthisland.org/journal/index.php/magazine/entry/aging-farmers-vanishing-farmland
Acres of open space converted to housing, 1990-2018

1.3 million acres, an area larger than Glacier National Park, of undeveloped land has been converted to housing in Montana since 1990. The coronavirus pandemic only served to increase the demand for housing in the state, which accelerated home construction and loss of open space.

Map: Jordan Unger • Source: Montana Department of Revenue as reported by Headwaters Economics • Get the data • Created with Datawrapper
Is it going to be from family farms or corporate agriculture? It's going to be more and more corporate agriculture. Large corporations are increasingly taking over more and more, have been for a long time."

Acres of Farmland, 2012 and 2017

Throughout the 21st century, farmland in the country has been steadily declining. This land is oftentimes converted for development purposes.

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<th>2017</th>
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Chart: Jordan Unger • Source: Farmland Information Center • Get the data • Created with Datawrapper

Still, the transformation of America’s agricultural system is not without consequence. Smaller farm and ranch operations

Acres of farmland, 1997 - 2017
Climate Change Is Exacerbating Stress and Anxiety Among Farmers

For agricultural workers engaging daily with the natural world, warming temperatures are putting a strain on mental health.

Nestled in the vast, expansive landscape of Western Montana about an hour north of Missoula lies Deluge Farm, a modest 20-acre organic vegetable farm that is also home to pasture-raised sheep, chickens, and turkeys.

Elan Love has successfully run the operation for more than a decade, despite the fact that he had minimal experience in organic farming when he first took over. Love is overwhelmingly happy he chose to pursue a life in agriculture.

“I have dedicated my life to something that I find meaningful,” he said. “Even though the life is very difficult and even though I’m not profitable every year in a row, for my personal wellbeing and for my quality of life, it is very good.”

Love hails from a family of scientists and naturalists. He himself has an academic background in paleoclimatology, so it’s not surprising that he’s attuned to how climate change is impacting almost every aspect of human life.

“I generally consider most things to be in the cross hairs of climate change in one way or another,” Love said. “There is very little that I see as being unthreatened in the human realm.”

Love puts agricultural workers’ ability to keep farming and living an agricultural lifestyle at the top of the list of things at threat. “Agricultural workers are aware of the problem [of climate change], but people mostly are just trying to keep their crops alive and to keep going another year,” he said. “Trying to imagine what things will be like in 10 or 20 years, I do that, but I don’t think it’s psychologically healthy for people to do.”

“Looking at the situation as a person with a background in environmental science subjects, the outlook is profoundly grim,” he added. “Simply keeping your head down and trying to get by day by day and year by year is, frankly, the most rational thing for most people.”

Love isn’t the only one worried about the future for farmers as the climate continues to warm. Due to the nature of the work, farmers and ranchers already battle near-constant stressors such as unpredictable weather, crop failures, fluctuating markets, and razor-thin profit margins. But now, given that those in the industry directly engage with the powerful, changing forces of the natural world, climate change is increasingly forcing itself into the fold of farming-related pressures. The issue is directly affecting finances, the stability of the sector profession, and the mental health of those involved.
In fact, across the world, agricultural workers have reported experiencing negative psychological effects and increasing stress related to the impacts of climate change.

A 2014 study, for example, found that agricultural workers in drought-affected regions of Australia reported significantly lower life satisfaction compared to non-agricultural workers in those regions.

A 2017 study found that increasing temperatures significantly influence suicide rates among farmers in India. The research highlighted that when temperatures are above 68°F, a 1.8°F increase in a single day’s temperature correlates with roughly 70 additional suicides across the country. The correlation was only observed during India’s growing season, during which higher temperatures drive crop failures.

And a 2020 survey of 125 Montana farmers and ranchers found that more than 70 percent agree that climate change is having an impact on their agricultural business. Moreover, nearly three quarters noted they were experiencing moderate to high levels of anxiety when thinking about climate change and its effects on agricultural business.

“The majority of respondents reported directly feeling the effects of climate change on their operation. That’s huge,” said Meredith Edwards, the study’s lead author. “Farmers’ and ranchers’ lives literally depend on the climate to make food for people. Not everybody can say that. A lot of us can say our lives are directly affected by climate but not necessarily the money we make and our livelihoods.”

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While it’s difficult to predict the exact ways in which global warming will impact the diverse and varied agricultural sector, as temperatures increase, it’s clear that the repercussions will be significant in the western United States. Already, the effects are being felt.

Montana, for example, has already seen a decrease in the number of extremely cold days and, conversely, an increase in the number of extremely hot days. The summer of 2021 brought record heat to the state. Missoula set a new record, reaching 90 degrees Fahrenheit or above as a daytime high 22 days in a row. The state is also experiencing prolonged droughts, drier and hotter summer months, and increased frequency, and intensity of natural disasters.

“The hot and dry seasons I’ve experienced here starting in maybe 2013 or 2014 have really seemed to be exceptional to me,” Love from Deluge Farm said. “I irrigate from a small artesian well with a very limited flow, so I don’t have infinite water. And when things are dry and very hot with a lot of sun, it makes it just very difficult to keep things alive.”
“My main job is trying to get enough water on things that they live,” Love added. “Crop failures can happen, but also very hot and dry conditions can produce blooms in the populations of specific insect pests that can be very destructive.”

Kim Murchison and Josh Slotnick, who have been growing food at their family farm, Clark Fork Organics, on the west side of Missoula Valley since 1992, have similarly observed a shift in conditions.

“When we started out almost 30 years ago, a 90-degree day was really hot, and we’d have maybe one week where it got into the 90s. But, for the most part, we were outside, and it was in the 80s, and it was pretty nice,” Murchison said. “And now it’s not unusual to have a couple of weeks where it is in the 100s, and that has gotten really hard. It’s gotten hard for the humans, and it’s gotten hard for the crops.”

Conditions are only expected to get worse. A 2017 statewide report by The Montana Climate Assessment predicted that, depending on the emission scenario, temperatures in Montana could increase between 4.5°F and 6.0°F above those recorded between 1971 and 2000 by mid-century, and by 5.6°F to 9.8°F by end-of-century.

“In terms of extreme heat, the days over 90 degrees Fahrenheit are projected to consistently be 30 to 40 more days a year then we had in the year 2000,” said Dr. Bruce Maxwell, professor of applied plant ecology at Montana State University. “That will be very hard for plants to survive or to be productive in that period.”

Given the forecast, some farmers, including Murchison, are already starting to take steps back from their work in agriculture.

“The weather is really hard and pretty unpleasant,” she said. “I just don’t want to work in 100-degree weather anymore and try to fight this anymore, so I’m cutting back a bunch.”

And it’s not just the heat. In the coming decades, precipitation is likely to continue to decline in Montana — and across the West — as well.

“We’re going to be seeing snowpack disappearing, and that snowpack in the mountains is absolutely critical for farmers and ranchers. That’s the bank, that’s the savings account that lets the water kind of seep out slowly,” said Dr. Paul Lachapelle, a professor in the Department of Political Science at Montana State University. “And so, all those farmlands and ranchers that are dependent on irrigation and water rights are really going to be facing unprecedented water challenges in the future as a result of that changing snowpack.”

Ian Barry and his partner, Caitlin Thompson, lease and run Lowdown Farm, a 40-acre farm located on the Flathead Indian Reservation in western Montana that is part of the
Flathead Indian irrigation network. As such, the farm’s water is supplied through a series of canals and a reservoir from the Mission Mountains.

“I’ve only been at this for five years, but what I hear from people who’ve been in this area longer than I have is that what used to be a fairly well guarantee of having irrigation water from around April 15 to October 15, is not necessarily a guarantee anymore,” Barry said.

In 2021, Barry and Thompson reported feeling unprecedented levels of climate-related stress. The heat. The drought. The lack of water. The feeling that each spring is more of a gamble trying to predict which crops to start and when.

“We are very seriously concerned about what the future might hold as far as drought and heat. The biggest thing is water. My partner and I are passively looking for farmland of our own, and we always want to be around western Montana. For the first time this year, we started saying to each other that maybe this isn’t the place to be,” Barry said. “We’re very concerned about the long-term climate predictions, and it’s changing what we think we might want to be doing in the future.”

The increasingly commonplace heat waves, higher overall temperatures, and lower quantity of precipitation are also leading to an increase in the prevalence and severity of wildfires. Molly and Michael Davidson, who run Crescent Ridge Farm in Montana’s Clark Fork River Valley, know well the harm that fire can have on both mental and physical health after experiencing Montana’s 2021 summer wildfire season.

“We were covered in smoke for over two months,” Michael Davidson said. “It definitely affected my sleeping habits, my respiratory system. I knew somedays that I would have to go back out to work at seven in the evening because of the smoke and heat and when I’d rather be with my wife and daughter, I’m not going to be mentally into the tasks that I’m supposed to be doing on the farm.”

“That adds stressors to my family,” he added. “So, you got the whole relationship with mind, body, health, family — they’re all interconnected when it comes to a farm.”

Montana is far from the only US state experiencing the impacts of climate change. Last year, the Pacific Northwest suffered through a summer of deadly, triple digit heat.

For Oregonians Maud and Tom Powell — who have owned and operated Wolf Gulch Farm, a small vegetable and seed farm in Southern Oregon, for over two decades — the 2021 “heat dome” followed years of lower-than-average rainfall and higher-than-average temperatures.

“It’s been devastating. The emotional component is just heart-wrenching. Our kids are now 22 and 18, so I gave birth to my son on the property, our daughter was six months
old when we moved there. We planned to live there our whole lives,” Maud Powell said. “For 25 days straight the temperature did not drop below 95° F. So, at some point in July, [my husband and I] just turned to each other and said if we want to keep farming, we are going to have to move.”

In the past, Powell viewed owning a farm and pursuing a life in agriculture as an overall net positive in terms of her mental health. This, however, is no longer true. “Now, it’s just constant anxiety and dread,” she said.

This anxiety is also hitting Mike Nolan and Mindy Perkovich, owners and operators of Mountain Roots Produce farm out in southwest Colorado’s Mancos Valley.

The Mancos Valley has long enjoyed relatively secure water. Now, however, drought conditions are the worst they have been in nearly two decades. In fact, between January 2020 and August 2021, the Southwest saw the lowest total precipitation and the third-highest daily average temperatures on record for the region.

“In the past four years, it just seems like things are just getting stacked between the heat waves and the lack of water and the grasshoppers and disease issues,” Nolan said, referring to how increases in temperatures and decreasing precipitation in the West are contributing to spikes in the prevalence of certain diseases and pests, which can decimate crops. “The last 18 months have felt really crazy, and the last four years have been really challenging for sure when it comes to climate change related issues.”

Nolan and Perkovich only had irrigation water for about five weeks this past growing season in 2021. They had to use domestic water in order to help their crops survive. “We can’t run sprinklers with that. We have to run it, you know, a couple of beds at a time pushing it around almost 24 hours a day to keep things kind of going,” Nolan said.

Overall, climate change is translating into a direct threat to the economic viability of farms across the Western United States and the very identity of farmers and ranchers.

“The bottom line is the question of whether they are going to be able to continue ranching or farming with the new trends that have been observed over the last several years and maybe even decades in terms of climate change,” said Dr. Mark Schure, associate professor in the Health and Human Development department at Montana State University.

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For some agricultural workers, the relentless and compounding set pressures is simply too much.
The suicide rate among agricultural producers is distinctly high according to reports from the Center for Disease Control and Prevention (CDC) that look at suicidality by occupation. And, a January 2020 CDC study found that suicide rates overall had increased by 40 percent in less than two decades. “Consistently, ag production has been among the top in terms of the suicide rate,” said Alison Brennan, assistant professor in the Health and Human Development Department at Montana State University.

Agricultural workers often deal with geographic and social isolation, and the rural communities in which they live also traditionally suffer from a lack of mental-health resources.

“One mental health services just don’t exist. There are not mental health providers in some counties,” Brennan said. “In some really rural counties, if there is a primary care provider, there might only be one in the whole county.”

According to the American Psychiatric Association, an estimated 60 percent of residents in rural America live in areas with a shortage of mental health professionals. But that’s not the only barrier to care.

“Some farmers probably feel they could go talk to somebody, but [think] they would not get it. It’s probably some nice girl who just graduated from college, and they are not going to understand what it’s like on a farm and what I’m facing,” said Meg Moynihan, senior advisor on strategy and innovation for the Minnesota Department of Agriculture. “Plus, [they may think] I can’t afford it. It’s too far away, and I really don’t have time to do it. Probably nobody can even help what’s wrong. It’s just so easy to swallow that inside yourself.”

Stigma also prevents some from seeking mental health services.

“Even if services exist in a community, if it’s a small community, everybody knows everybody. They’ll see you going in. They’ll recognize your truck,” Brennan said. “So, there’s that sort of concern about privacy and confidentiality, and stigma certainly creates a barrier.”

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With the stresses of farming now being dramatically compounded by climate change, many farmers and ranchers on the frontline are feeling demoralized about the future.

Michael Davidson, for example, doubts that his dream of passing Crescent Ridge Farm on to his daughter Grace is likely to become a reality.
“I would like to say that in ten years’ time, I would be handing this over to my daughter as a successful business, but I cannot guarantee that,” Davidson said. “And that is directly related to the way I perceive our weather patterns and where climate change is taking Western Montana.”

“I am pretty pessimistic,” said Mike Nolan in Colorado, echoing Davidson’s sentiments. “I don’t see a way out of this, and I don’t feel much hope.”

Link to published story:

Till and Toil

*How Climate Change is Impacting Farmers’ Mental Health*

In the high desert climate of Southwest Colorado, Mike Nolan and Mindy Perkovich own and operate Mountain Roots Produce, a seven-acre farm with about three to five acres dedicated to producing vegetables, and the rest for cover crops. However, in the last few years, the quantity of produce the couple has been capable of growing has been slashed significantly. In 2021, for example, Nolan and Perkovich reported doing about half to three-quarters of an acre of production while most everything else sat bare.

The couple attribute their dwindling farm produce to heat waves, inadequate water supplies, and severe drought conditions that have been slamming farmers and ranchers in recent years in this area of the Western United States. This coalescing mix of conditions, all intensified by global warming, is not only cutting into financial bottom lines, but, according to Nolan, contributing to feelings of despair.

‘I’ve done personal counselling. Mindy’s done personal counselling. We’ve done couples’ therapy just for other tools and outlets. COVID made it even harder because I feel like when farmers get together there’s a lot of cathartic conversation and you can process things and let them go,’ Nolan said.

‘In general, I am pretty pessimistic,’ he continued. ‘I don’t see a way out of this at this point, and I don’t feel much hope. I don’t think I can even laterally move anywhere in the west because this is happening everywhere. And now that I’m 40, I don’t really want to uproot and start over.’

Nolan and Perkovich are not alone in expressing this sullen sentiment.

In 2020, the Journal of Rural Mental Health published a study on farmer and rancher perceptions of climate change and their relationships with mental health, looking at the correlation between climate risk perception and climate-related anxiety. The study, which surveyed 125 Montana farmers and ranchers, found that more than 70% of respondents agree that climate change is having an impact on their agricultural business. Moreover, nearly three quarters noted they were experiencing moderate to high levels of anxiety when thinking about climate change and its effects on agricultural business.

‘The majority of respondents reported directly feeling the effects of climate change on their operation. That’s huge,’ said Meredith Edwards, the study’s lead author. ‘Farmers’ and ranchers’ lives literally depend on the climate to make food for its people. Not everybody can say that. A lot of us can say our lives are directly affected by climate but not necessarily the money we make and our livelihoods.’
Heightened stress

The nature of farmers’ work is intrinsically a battle against near-constant stressors such as unpredictable weather, animal illnesses, crop failures, fluctuating markets, unforeseen disasters, financial constraints, and thin profit margins. But now, more so than ever, climate change is increasingly forcing itself into the fold of pressures they face, as the industry sits in the precarious position of being directly engaged with and impacted by the powerful – and fluctuating – forces of the natural world.

On the Flathead Indian Reservation in northwestern Montana, roughly 50 miles north of Missoula, lies the Moiese Valley – an agricultural-intensive region close to the Flathead River and with breathtaking views of the Missions Mountains to the east.

It is here that Ian Barry and his partner, Caitlin Thompson, lease and run Lowdown Farm, a small, 40-acre certified organic farm specializing in a variety of mixed vegetables and herbs in addition to running a small Black Angus cattle herd.

Due to its geographic location, Lowdown Farm depends on the Flathead Indian irrigation network with the farm’s water supplied through a series of canals and a reservoir from the Mission Mountains.

‘I’ve only been at this for five years, but what I hear from people who’ve been in this area longer than I have is that what used to be a guarantee, or fairly well guaranteed, supply of irrigation water from around April 15th to October 15th, is not necessarily a guarantee anymore,’ Barry said. ‘You don’t necessarily have that guarantee of water, which in our climate is everything.’

Retrospectively looking at the last five years that they have spent running the farm, Barry and Thompson feel their situation has progressively become more and more stressful due to factors revolving around climate change.

The heat. The drought. The feeling that each spring is more of a gamble trying to predict which crops to start and when. Being forced to change the scale of certain crops.

According to the National Integrated Drought Information System, 2021 was the fourth driest year in Montana in the past 127 years. Under these conditions, crops’ ability to grow has been severely impacted leading to decreased production and economic loss.

‘We are very seriously concerned about what the future might hold as far as drought and heat. The biggest thing is water,’ Barry said. ‘The long-term climate predictions that we’ve kind of always heard and knew were there seem to be becoming more real. That has sunken in as more of a reality. We’re very concerned about it, and it’s changing what we think we might want to be doing in the future.’
Concerns for the future

Also in Montana, in the heart of the Clark Fork River Valley, the owners of 23-acre Crescent Ridge Farm Molly and Michael Davidson recollect being negatively impacted by the high temperatures, drought conditions and wildfires that plagued Montana during the 2021 summer.

‘We were covered in smoke for over two months,’ said Davidson. ‘It definitely affected my sleeping habits, my respiratory system. I knew some days that I would have to go back out to work at seven o’clock in the evening because of the smoke and heat and when I’d rather be with my wife and daughter, I’m not going to be mentally into the tasks that I’m supposed to be doing on the farm.’

‘That adds stressors to my family. So, you got the whole relationship with mind, body, health, family – they’re all interconnected when it comes to a farm,’ he said.

Davidson hopes to pass along the family’s farming operation to his six-year-old daughter Grace one day – a reality he is not sure will come true.

‘I would like to say that in ten years’ time, I would be handing this over to my daughter as a successful business, but I cannot guarantee that,’ he said. ‘And that is directly related to the way I perceive our weather patterns and where climate change is taking western Montana.’

Taken together, climate change is impacting any sense of predictability for farm owners, the guarantee of necessary resources as well as everyday life, mood, and activity. As they continue to experience struggles in the context of climate change, public health efforts and interventions are needed to provide therapeutic outreach and climate adaption education specific to farmers.

According to Dr. Mark Schure, associate professor of health and human development at Montana State University and co-author of the 2020 study on farmers, climate change and mental health, there is currently not enough attention on the issue.

‘I don’t think it’s on the awareness scale that it should be. It probably falls off most people’s radars because most people are not living in rural agricultural communities,’ Schure said. ‘They don’t know those people. They don’t understand the reality of a lot of these folks.’

Overall, climate change is translating into a direct threat to the economic viability of farms across the Western United States and the very identity of farmers and ranchers. For Schure, the shifting climate and its associated ripple effects have the potential to be
an existential threat for farmers and ranchers’ livelihoods. ‘The bottom line is the question of whether they [farmers and ranchers] are going to be able to continue ranching or farming with the new trends that have been observed over the last several years and maybe even decades in terms of climate change.’

Link to published story:

https://www.anthroposphere.co.uk/post/till-and-toil
Regenerative Agriculture Idaho

The agricultural sector is both a driver and an industry under threat from environmental degradation in Idaho. Consequently, an increasing number of farmers and ranchers are modifying their agricultural practices in favor of more sustainable principles across the state. Regenerative agriculture is one set of techniques gaining notable traction recently.

Nestled between Washington state to the west and Montana to the east, the Idaho Panhandle, often just referred to as North Idaho, is a remote region of the state known for its untouched wilderness and plentiful lakes and prairies.

From an agricultural perspective, the scenic area is most noted for silviculture, or the growing of trees and the production of lumber. In fact, Idaho’s five northern most counties are home to a dozen lumber mills. The cultivation of grass seeds and hops for beer production, which is common throughout the entire Pacific Northwest, is also significant in the region.

On top of that, a notable number of cattle ranches also dot the Panhandle’s landscape.

Roughly 20 miles northwest of the picturesque city of Coeur d’Alene lies one such cattle ranch – the Lazy JM Ranch. Owned and operated by John and Betty Mobbs, this small and independent cattle ranch rests on, according to their website, “a lush patch of paradise on the north end of Hauser Lake.”

The ranch was initially established in the early 1970s by John Mobb’s grandparents, Charles and Amelia, and his parents, Jack and Lee Mobb. Over the years, John, a retired Registered Nurse, and wife Betty, a retired schoolteacher, took over operation of the place making them third generation stewards of the land. The couple’s son, Travis, along with wife, Jessie, also now help raise beef on the 150 acres of family ground.

“In the beginning, in 1972, my mom, dad, grandmother and grandfather bought the place. We had traditional ranching practices – that would be cutting hay and using that to feed our livestock,” John Mobbs said. “Another traditional practice we did was cultivate and plant fields and use fertilizer and spray and everything that else that goes along with it – especially the tillage part of it.”

However, these days, under John and Betty’s helm the Lazy JM operates a bit differently compared to its past – and to other cattle ranches in the Gem State.

“Over time, Betty and I took over the operations of the place. When Betty retired, we decided we were going to raise grass fed / grass finished beef,” John Mobbs said. “But prior to that, I had decided that I was going to start restricting our chemical use.”
It was this pivot that, unbeknown to them at the time, would set in motion the process that would ultimately alter the Mobb’s agricultural trajectory. Further adding to this rotation, though, the Mobbs began attending different agricultural workshops and courses that really opened their eyes.

One year, John and his son, Travis, made the journey to Salmon to take a course on pasturing at the Lost Rivers Grazing Academy, an intensive four-day workshop drawing livestock producers who want to improve their grazing management skills.

On top of that, in 2018, Betty and John attended The GrassFed Exchange Conference, a gathering of sustainable food supporters who come together to network and exchange ideas, held in Rapid City, South Dakota that year.

These classes, coupled with their own research and experiments, would alter the Mobb’s ranching techniques, giving them encouragement to veer away from more conventional agricultural practices and pursue a different path.

“What we learned in our classes and research is that we don’t want to till our ground because that destroys our root system, and it also disrupts the microbiology and insect populations in our fields. We also don’t use synthetic sprays and fertilizes because that also disrupts the root system of our plants, and it kills our microbes and insects,” John Mobbs said.

“Our ground is a living organism, and we need to promote that life so we can therefore promote our forage, which therefore feeds our animals.”

Water and wind have eroded Idaho soils ever since the first plow entered the ground in the state some century and half ago. Since then, tillage, plus intensive fertilizer and pesticides use, have continued to degrade the soil on which agriculture depends on.

Common industrial agriculture practices such as tilling, lack of cover crops and synthetic fertilizer and pesticide use has left farmland in Idaho stripped of the nutrients, minerals and microbes that support healthy plant life.

In contrast, John and Betty have instead leaned towards an all-natural way of doing things by focusing on enhancing the entire ecosystem of their ranch and by, more specifically, focusing on soil health.

With healthy soil, the Mobbs have sought to develop nutritious grass, clover and other vegetation for the cows and chickens on their land. Their livestock, nourished by nature and humanely treated, are completely free from antibiotics, herbicides, pesticides and grains.
“Conventional agriculture is not sustainable,” Betty Mobbs said. “If you really start researching what conventional agriculture is doing to the world, you want to divorce yourself from that.”

By focusing on being sustainable stewards of the land and animals, the Mobbs have joined a growing body of Idaho agricultural producers breaking away from conventional agricultural practices in favor of a suite of techniques known as regenerative agriculture.

“We think that regenerative agriculture is good for the planet, the animal, the water and the environment,” Betty Mobbs said.

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Lacking a universal definition and, in comparison to organic, a more official certification process, regenerative agriculture refers to both an attitude and system of holistic land management and farming practices whose primary goal is to promote soil health by restoring soil’s organic carbon.

“Regenerative agriculture, as a collective term, is kind of a loose, ambiguously-defined term, but it generally means trying to rebuild soil, maintain or rebuild some biodiversity in terms of having more insects, using less pesticides, those sorts of things,” said Dr. Tim Seipel, an assistant research professor in plant ecology and agricultural ecology at Montana State University. “And it really depends more on the actions that people take then it does with being involved in the newsletter.”

Common practices and actions often lumped under the regenerative agriculture umbrella include the use of cover crops – plants grown to cover the soil after farmers harvest the main crop – and no-till agriculture, which is where farmers or ranchers avoid plowing soils and instead drill seeds into the soil. Other practices include diverse crop rotations, such as planting three or more crops in rotation over several years and rotating crops with livestock grazing. Making use of reduced fertilizer or pesticide, oftentimes, is also considered regenerative.

Soil health largely underpins narratives surrounding regenerative agriculture. In fact, at the core of calls for regenerative agriculture, is the idea that soil – and soil life in particular – is under threat.

The issue is, indeed, dire. The world grows 95% of its food in the uppermost layer of soil – topsoil. Consequently, topsoil is one of the most important components of any food system. However, at the hands of conventional farming practices, this most productive soil is disappearing.

Estimates among scientists and researchers, though, vary as to just how quickly this soil is degrading.
At a speech in Rome in 2014, Maria-Helena Semedo, a Cape Verde economist and politician who currently serves as Deputy Director-General of the Food and Agriculture Organization, reported that about of the world’s soil has already been degraded and alleged that if current rates of degradation continue, all the world’s topsoil could be gone within 60 years.

Nearly half of the most productive soil has disappeared in the world in the last 150 years, threatening crop yields and contributing to nutrient pollution, dead zones and erosion. In the United States alone, soil on cropland is eroding ten times faster than it can be replenished.

Without topsoil, the earth’s ability to filter water, absorb carbon, and feed people plunges.

Generating three centimeters of topsoil takes 1,000 years, and if current rates of degradation continue all of the world’s topsoil could be gone within 60 years.

Nature takes a long time to build soil. By some estimates, it can take 500 years for healthy topsoil to develop and less than a century to degrade.

The United States is losing 10 billion tons of fertile soil every year, exponentially faster than nature can replenish it. This is particularly alarming when you consider the role U.S. farms play in feeding the world’s growing population. Overall, we’ll need a substantial increase in agriculture production by 2050 if we’re to feed the 10 billion people who will be inhabiting the planet.

While erosion rates have recently declined somewhat since consistent measurements began in 1982, soil loss continues at a rate that threatens farm legacies. These erosion rates are one of the reasons why, from 1982 to 2015, the area of prime farmland as defined by the NRCS shrank by 25.8 million acres—that's roughly the size of the state of Ohio.