The **MISSION** of Mad Agriculture is to reimagine and restore our relationship with Earth through agriculture.

The **PURPOSE** of the Mad Agriculture Journal is to explore and create the new agrarian culture. It is dedicated to living the questions, trusting that in the living we will find the answers.
Anthony Myint
Anthony works to mobilize the restaurant industry and allies in the public and private sectors to support healthy soil as a solution to the climate crisis. He is also a chef, who won the 2019 Basque Culinary World Prize for his work with Zero Foodprint. He has co-founded many restaurants and restaurant-adjacent projects, including: Mission Street Food, Mission Chinese Food, Mission Burger, Lt. Waffle, Commonwealth, and The Perennial. Anthony was nominated for a James Beard Award for Outstanding Restaurateur in 2019.

CK Harshbarger
Working as a soil scientist over the last two decades, Clark has been blessed to observe the diverse landscapes, soils and ecosystems, in which we are apart of this great nation. He has also had the opportunity to learn from ranchers, farmers and producers first hand about the real world challenges they face to sustain a land based business. Through his experiences, he has learned that by listening to the land, we can discover the answer to the question "What does this place want to be?" Clark’s role as a producer is to think holistically about the land, ecosystems, in which we are apart of across this great nation.

Dustin Bailey
Dustin grew up in the mountains of Colorado. He’s been obsessed with nature since he was a kid and he completed his Bachelor’s degree in Ecology and Evolutionary Biology in Boulder. A jack-of-all-trades, he was worked extensively in the kitchen industry, worked on biodynamic farms, plant genetics labs, and landscaping crews, along with pursuing dozens of hobbies. He nerds out about soil science, apple trees, and plant biology.

Jordan Perkins
Jordan is a photographer based in Ashfield, Massachusetts. Jordan’s photography focuses on flowers & clouds, people & animals, street-shots & landscapes. @jordanarthurperkins.

Josh Addison
Josh is a photographer based in Boulder, Colorado. He chose to obtain a Bachelors Degree from the University of Colorado in Environmental Studies with a focus on Ecology. During his time in college, he realized what tremendous threats the natural world faces today. Biodiversity loss, habitat destruction, resource consumption and climate change are a few of the most pressing environmental issues of our time. During college, he also had the incredible opportunity to work at the Institute of Arctic and Alpine Research, which further solidified his passions. Shaped by his love of the outdoors, and his college degree, Josh realized that he wanted to devote his life to giving a voice to the land and all of its inhabitants.

Karen Leibowitz
Karen coordinates strategy for the Perennial Farming Initiative and its Zero Foodprint and Restore California programs. As co-founder of several award-winning and path-breaking restaurants (Mission Chinese Food, The Perennial, and Commonwealth), Karen was nominated for a James Beard Award for Outstanding Restaurateur in 2019. She is co-author of two cookbooks: Mission Street Food (with Anthony Myint) and Atelier Crenn (with Dominique Crenn), and her journalism has appeared in the New York Times, Bon Appetit, Food & Wine, etc. Instyle included Karen in their inaugural list of "50 Badass Women."

Kacey Stewart
Kacey Stewart is a Ph.D. candidate in English at the University of Delaware who writes and teaches about the intersection of literature and the environment. He is a former NSF National Research Traineeship Fellowship, and has collaborated with The Land Institute and the National Socio-Environmental Synthesis Center. He lives in Kennett Square, PA with his wife Hanah and their blind cat Pepper.

Kirk Horton
Kirk Muir Horton is a director, cinematographer, and photographer, based out of Boulder, Colorado. He loves just about every animal out there, ill-fitting clothing (particularly wigs), and Liverpool FC. He wants to learn how to play the harmonica and doesn’t drink coffee.

Lena Miller
Lena grew up in Berkeley, California in a family with a deep appreciation for cooking, community, and ceremony around mealtimes. She studied Global Environmental Change and Sustainability at Johns Hopkins University, and there began her investigation of the food systems of Baltimore and beyond. She moved to Boulder, Colorado in 2018 to direct Meadowlark Farm Dinners and has been entrenched in the culinary scene ever since.

Maria Givens
Maria Givens is a member of the Coeur d’Alene Tribe in northern Idaho and serves as the Communications and Public Relations Director for the Native American Agriculture Fund. Prior to joining NAAF, she worked as a freelance writer reporting on tribal political issues and native food systems publishing pieces in Vox, the Daily Yonder and Civil Eats. She graduated from the University of Colorado in 2019 with a Masters of the Environment and specialized in Sustainable Food Systems. Before she went to graduate school, Maria worked on agriculture policy in Washington, D.C. at the National Congress of American Indians. In her free-time, she enjoys cooking, playing basketball and picking huckleberries in the Idaho mountains with her family.

Rebecca Stumpf
Rebecca Stumpf is a full-time editorial photographer specializing in travel, portraiture and documentary photography. Her passion for telling visual stories lies in understanding the connection between people and nature - how they are inspired by it and the greater world around them; how they work with it; how they connect with it; how they experience it; and the creative space between the two.

Jordn Perkins
Dear Reader,

It’s 3:13am, June 9th. A soft rain is falling. I lie in bed. My mind is coursing frenetic through things I love and things that are terrible and ripping me open. Nicole is laying beside me, tossing around, restless in her sleep. My state of being is cascading through the house. I need to get out of here.

The rain is falling. I think of the wheat we’ve planted. How thirsty it is. A quarter inch of rain has fallen, at least. 1% of what I expect for the year. This calculus is a veneer of what’s keeping me up. I struggle to metabolize the collective trauma of the world. COVID-19, racial injustice, millions of people in pain, billions living at the expense of privilege and extraction. The trauma of hundreds of years. A wellspring of beautiful rage is seething through humanity. Systems built against them, upon them, over them, by them. Systems for white people. I try hard to see them, feel them, recognize them, figure out my complicity and how I am perpetuating the same injustice that generations of my family have perpetuated. I feel ridiculous for having to work so hard to see injustice that is so obvious.

Things are ripping open. Things have been ripped open, for a long time. The wound has always been there. I’ve not been able to see it like I can now. I am sorry.

I wonder how to begin. Devotion to truth enables a revolution. I can feel myself wanting to help, create solutions, to save the day somehow. But, this isn’t it. I need to step back for a moment and listen. The deep work begins within. It feels too slow.

Then I think of fire under water.

No revolution in outer things is possible without a prior revolution in one’s inner way of being. As within, so without. I think of Grace Lee Boggs. Transform yourself to transform the world.

I feel grief welling inside me. This grief is way overdue.

It’s 4:13am. A soft rain is falling. I’m at the office now. I couldn’t sleep. Society is just starting to open up. COVID-19 is with us: invisible and visible. I think of all the things that I can’t see, but drive the world: the roots of wheat growing, systems of racism, COVID-19.

I sit for two hours. Numb. I feel everything and nothing at once.

My mind goes back to wheat. Two days ago, it was 5 inches tall. And though I cannot see it grow, today, it’s 6 inches tall. Life is relentless. Death is relentless. Together they bend toward equity and carry the promise of renewal. I am at once growing and decomposing. I have much to learn. So much to practice.

Love and light,
Philip Taylor
FOGBOW

CK Harshbarger

A fogbow, who has ever heard of such a thing? And for that matter, who has ever seen such a thing? Well, as of today, I have. As the bird’s song pierced the silence, I marveled at what I saw. All around me, the red, yellow, auburn and orange hues were glazed over in a foggy morning haze. As the sun rose over the forest covered ridge to the east, it created a halo across the meadow that dared me to walk through. Not a halo as meant for an angel but one meant for this place in time, this moment. A place deemed worthy of such an honor. A place where agriculture is beautiful. A place that represents the opposite of the hatred and violence that exist in the world. In this world, peace can often elude us. So in this place, standing in front of a fogbow for the first time, I try to define, or should I say, find peace.

Yet still, surrounded by all this life, I feel loneliness too, while grappling with the understanding of being part of something bigger than myself. When working with livestock, one is constantly surrounded by life, death, birth and decay and on a daily basis one is reminded of his or her place in this cycle. But do I truly accept my own mortality? Of course one does not have to be a farmer to find oneself challenged by this question. We are all asked to try and find peace and courage when loved ones become sick or dear relatives of generations before ours pass. In the midst of sadness, grief, and denial we eventually come to accept the sacred cycle that governs the life on our planet.

I stewed in this thought for an unmeasured amount of time. When right before my eyes exists an answer. A living yin yang of two 150 year old White Oak trees. One alive and one dead, as if a shadow had been cast as a permanent reflection. They’re together to remind all those who dare to look, at their own mortality. Sacred to me, is the ability to acknowledge this moment, knowing that it is precious and will not last. It soothes my aching feet and tired back. It relieves my worried mind and tortured spirit of any past grief I have experienced and the worry of future grief I will one day experience. It gives me the courage to walk through the fogbow. Back into a world that requires a daily grind of service and of sacrifice. Knowing that while I push myself I must continue to demonstrate compassion for all things. I have reason to exist. I have reason to carry on. And in this moment, looking through a fogbow, while surrounded by grasses, forbs, sedges, rushes, trees, shrubs, insects, fungi, arthropods, cows and yearling calves, with soil under foot, I have peace.
First thing first: as a new voice in the Mad Ag Journal, let me introduce myself. I arrived in the Front Range almost a year ago as I write this. Before that I was in California, studying at UC Davis for my PhD, and before that in Cali, Colombia, where I was an ag development researcher regularly dispatched to Ghana, Tanzania, and elsewhere in the global tropics to study and report on adaptation to climate change in smallholder agriculture. And before that, in Florida, where I grew up and where it all started on my family’s farm, where we raised horses, and my mother a garden, my brothers and I the odd 4-H animal, where by night there were coyotes that laughed in the back pasture and by day snapping turtles that lounged in the pond down in the old oak hollow. And before that, and before that...

As a grad student back in California, I chose to study ecology rather than the agronomy and horticulture tracks that UC Davis is known for. In explaining this decision to colleagues and confused relatives, I always resorted to the same justification: I wanted to be an ecologist that studies agriculture, rather than an agronomist that dabbles in ecology.

The science of ecology also appeals to me because it is young and messy and changing fast. The theories I learned in college only ten years ago are already all but obsolete. Furthermore, there is little that can be learned in ecology without prolonged, concentrated stints of observation in the field. The early heroes of ecological thought were adventurers and explorers: Humboldt on Mt. Chimborazo! Darwin in the Galapagos! E.O. Wilson in New Guinea! Even today, there are few fully committed armchair ecologists. The discipline still needs to prove itself. That means going outside and getting hungry, tired, and dirty and, if you’re me, sunburned, in pursuit of your science. And I like that.

With that little soliloquy out of my system, it’s time we turn to my favorite concept and working theory in ecology: resilience. No, not #resilience. It’s a nice hashtag, I admit; a perfect trendy word to lift spirits in times of uncertainty, and especially now that we’re all tired of using #sustainability. But I want to talk about resilience as I know it, which is as a much deeper concept rooted in ecological thought.

Studying plant ecology as an undergrad in Florida, I learned that ecosystems at their peak are in equilibrium. That ecosystems only change inasmuch as they are approaching their climax state, from one step in the chain of succession to the next. Ecologists now think differently. Systems are not static, but constantly in flux or non-equilibrium. It’s the stable ecosystems that are the outliers. “Dynamic equilibrium” is the sexy name ecologists chose for this property. Hashtag that. And importantly, there is no one possible state for a given ecosystem, but many such. Many alternative realities, if you like.

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It might seem like a trivial distinction, but for me it colors the way I look at everything – the farm as an ecosystem rather than a machine, and agriculture as a landscape of shifting hierarchies and complex interactions among soil, water, air, and organisms.

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There are lots of cool graphs with lines on them to describe this concept of ecosystems. There’s this one, for example:

It’s called “the adaptive cycle.” Nice, isn’t it? It show how ecosystem cycle through continuous stages of change, from exploitation (growing rapidly and consuming resources), to conservation (staying the same for a while), release (a sudden change) and reorganization, when the components of the system rearrange themselves into another system that doesn’t always look the same as the original.

Or there’s this one, another of my favorites:

It’s “hysteresis.” It’s showing how a system in one state can rapidly and non-linearly change into another state, and how you can’t always follow the same path to “go back” to the original state. The state of a system, in other words, depends on its history. Does that sound relevant to cropland management? How about ranching, or forestry for that matter? Think of it this way. An arid grassland can only be grazed for so long, by so many cattle, before it turns into a desert. When it reaches that tipping point, is it as simple as removing the cattle and the grassland will be restored? Probably not. Corrective management forces will have to be applied that are disproportionate to the grazing forces that caused the flip in the first place. And it might take much longer to get back to that grassland state than it did to flip from grassland to desert. That’s hysteresis.

But we’re getting off topic. There’s this other little line drawing that gets at the heart of resilience. It’s called a ball-and-cup diagram, or “roll-y ball” diagram, or – okay I’m still soliciting better names for this thing. I told you, ecology is a new science. It might have an unsatisfactory name, but it tells us a lot of things in just a few strokes.
Firstly, resilience is a property of systems. Any system – agricultural, marine, urban, social, digital – can have this property to varying degrees. It reflects the robustness of the system’s current reality. Things seem pretty good (or pretty bad) right now, but are they likely to stay that way? Or could a little push tip it over into another state?

Secondly, a system is a whole landscape of these alternate possibilities, looking much like one of those maze games I used to play as a kid. The one where you roll a ball around in its plastic case, trying to get it through the maze while avoiding the holes and dead ends. The holes, or basins, are different possible states that the system might fall into, depending on how far and in what direction you tilt the maze.

Finally, the shape of the basin represents the resilience of the system’s current state: deep and narrow means highly resilient. A lot of effort, many stacked disturbances and/or chronic stressors would be required to push it up and over the slope. The shallow, wide cup on the other hand – one little tap and it’s a whole different ball game. One hailstorm. One drought year. One pass too many of the plow.

The interesting thing for those who manage ecological systems, including farmers, is that the shape of that basin can change. The actions you take on your farm, the structures and interactions you foster, can make your basin shallower or deeper. Maybe you have a bad egg of a field, chronically low yielding and with unkind soils. Then you work to make that basin shallower so you can eventually bump the field into a more wholesome, healthier state. And conversely, in a system that’s working in your favor, you can build depth to the basin and do what you can to make sure that even a big bump won’t stop it from functioning in the way it has been. You can build in self-sufficiency, redundancy, diversity, adaptability – and so foster resilience. Like a line drawing. One line alone is merely two dimensional. But the more lines you add, the more possibilities emerge: the possibility of depth, of texture, of shading.

The old way of farming would have you act on the ball itself, throwing inputs and horsepower at a problem to coerce a system into producing the desired outcome. The new way looks at the shape of the basin itself, strategically tugging the strings to reshape the landscape of equilibria that underlies the farm ecosystem. The former casts the farmer as Sisyphus. The latter as the puppet master.

The ecologist C.S. Holling first put the name “resilience” to the property that describes a system’s ability to continue functioning under stress. That was in 1982, about 120 years after the Origin of Species was published, and almost 300 years after Newton described the laws of motion. Ecology is slick with newness, with regeneration, with emergent knowledge of the living earth. Ecology may be young, but we have been building towards this understanding of resilience for years and years. The excitement around the term and what it means for the way we build our newest realities is no passing trend. It is less a new idea than a re-distillation of much that we who observe the world closely – we farmers, we ecologists – already suspected. It is a deep, high-walled valley of thought. But, more importantly, it is still under construction.

How to measure it? How to put theory into practice? What to call it, even? We’re on that journey together, right now; it’s time to build it.
Boulder, Colorado is typically seen as an outdoor enthusiasts paradise, but this place has a surprising history of agricultural significance. In the late 1800’s and early 1900’s, gold lured prospectors and their families from all over the country to Colorado. As families started moving to Boulder, they also brought their favorite varieties of fruit trees from the Midwest, the South, and the Northeast. Soon enough, orchards began popping up and Colorado became one of the top apple-growing states. People around the country raved about the unique apples coming from Colorado. Today, that bit of history is lost from most Coloradans. The remnant apple trees around Boulder are withering away and with them, incredible tales and legends about American history.

During this apple boom in Colorado, a new cultivar was being created in Washington that was incredibly deep crimson red, had an extended shelf life, resistant to disease and pests, was incredible for industrial scale orchards, but tasted like cardboard. The introduction of Red Delicious solidified Washington’s place as the apple growing capital of the country. This was a time when premium prices were paid for the intensity of red an apple produced rather than its flavor. At the same time, orchards in Colorado were crumbling due to drought, disease, and significant drops in demand. As time went on, many of the trees in Colorado lived on without tedious pruning, irrigation, or special care. There are hundreds of these trees scattered around Boulder today. It is estimated that there are around 60 different apple varieties in Boulder that are each unique in taste, appearance, and use. These 100-year-old trees are time capsules and can teach us about a much different time period of agriculture when diversification was still king.

In 1905, the USDA cataloged all the known apple varieties in America and the finished product was a 400-page book of nearly 57,000 apple varieties. During this time apples were critically acclaimed, towns were named after their famous apple variety, and Colorado became one of the top apple-growing states. People around the country raved about the unique apples coming from Colorado. Today, that bit of history is lost from most Coloradans. The remnant apple trees around Boulder are withering away and with them, incredible tales and legends about American history.

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Some varieties, such as the Baldwin, are known for their biennial tendencies. They will have an incredibly heavy fruit bearing year and then the next year, they will focus on vegetative growth and will produce almost no fruit. In a commercial orchard with one or two varieties, this is a business nightmare. A whole year of little to no fruit profit from the Baldwin trees. Many of these heirloom apple trees share this biennial bearing quality which is why so many weren’t considered for commercial orchards.

The Golden Russet is another example of an apple left out by profit-oriented modern standards. Golden Russet is the golden child for cider producers. A famous pomologist and connoisseur of cider once said, "If you are going to plant 100 apple trees for cider, 99 of them should be Golden Russet. The rest should be whatever you want.” Golden Russet excels in so many ways; it makes a mean pie, incredibly complex cider, and a month after picking, the flavor is unlike any apple you have ever eaten. Regardless, the Golden Russet looks like the love child of a potato, pear, and apple. It is the exact opposite of Red Delicious in every way, and has consequently lost its edge on the market.

Some of these heirloom apple varieties were bred for hundreds of years to be perfect for the cider making process, some were perfectly bred for baking, and some were perfect for eating right off the tree. There are accounts of apple cultivation that go all the way back to ancient Rome: excerpts can be found in Homer’s Odyssey from 1000 BCE. Pliny the Elder wrote about apple cultivation in his well-known book Naturalis Historia, and Marcus Portio Cato wrote an in-depth guide describing fruit propagation in 150 BCE. In Christianity, the apple played a significant role in the Garden of Eden. This inevitably had an impact on the latin naming of the apple, Malus. Malus is similar to Malum meaning “evil”. Apples can be found throughout religions and myths from across the world. One of the labors of Hercules required him to pick the golden apple off the tree of life. In Norse mythology, apples are associated with the goddess of youth, Iðunn. Humans have been linked to the apple for thousands of years but the reason it is considered an American icon is because the number of varieties exploded once seeds were brought to the New World. Apples were the talk of the town in America up until the mid 1900’s. Throughout this period, trying the local apple variety was always a priority when visiting a new town.

Cider and apples have a much longer history in Europe than in North America. Cider was a popular drink in England and other parts of Europe because, in part, it was often safer to drink cider than water in many urban areas. The alcohol in the cider would kill most of the harmful bacteria and so colonists of the New World also took advantage of this quality. Up until prohibition, cider was a favorite drink in America. Once prohibition hit, the government quelled production by cutting down many of these cider trees. Yet again, America lost more unique varieties of apples.

We can thank a few people in American history for the spread of all these apple varieties but one individual in particular has found a place in American folklore for his involvement in bringing apples out west. John Chapman, better known as Johnny Appleseed, was an apple enthusiast and missionary. He started his first orchard in Pennsylvania with seeds collected from a local cider mill. When pioneers began heading west, John decided he would head down the Ohio River with a boat full of apple seeds. John was part of a Christian denomination called “Swe-denborgian” which, at first glance, seems like a more ecologically oriented theology than the more traditional orthodox denominations. John didn’t believe in grafting because it seemed morbid to him which is why he stuck to spreading apple trees by seed. John is likely responsible for creating hundreds, maybe thousands, of apple varieties in his lifetime by planting seeds throughout the country.

If you are familiar with apple reproduction, you know that planting an apple seed does not result in the same variety of fruit tree. For example, if you eat a honeycrisp apple, take a seed, and plant it, the tree that grows will likely taste, look, and grow differently than a honeycrisp apple. So imagine John floating down the Ohio River, scouting routes for pioneers, and planting apple seeds. Once the trees were a year or two old, he would dig them up and give or sell them to settlers. Each one of these trees was its own variety with eventual destinations spread all across the United States.
across the country.

Without this background, the apple pie as our national dish is a passing fact. But this pie holds the history of heirloom apples in our country. Luckily, there are still people cultivating and reviving heirloom varieties and cultural practices. These varieties were bred before the industrialization of our food system and can teach us important lessons about sustainable agriculture practices.

The apple trees that are left standing today in Boulder are typically around 100 years old, leaving us with a set of genetics that can provide a glimpse into their specialty, use and patterns. Unfortunately, due to old age, we are starting to lose these heirloom varieties at an alarming rate. With the push toward more diverse and holistic food systems, these heirloom apples have once again garnered some support. Home gardeners and farmers alike have begun to see the value in multiple varieties. On a practical level, orchard diversity can prevent the devastating realities of many pests in the region. The name of the game with biodynamic and biological farming is not pesticide use or fertilizer use but rather promoting diversity and soil health. Some apple varieties are susceptible to a devastating disease called fire blight. If you have an orchard of one apple variety, a bout with fire blight can be entirely destructive. Diversity can prevent the spread of disease, as some varieties may have a resistance.

The tide is turning for America’s food production, with movement toward species rich systems. Understanding the wisdom gathered and species cultivated from generations past will be a critical piece of the challenge ahead. Not only for bringing back incredible tastes and flavors, but also for preserving the history and regional needs associated with each variety. The apple trees of Boulder have withstood the shifting agricultural landscape of the last 100 years. Preserving and continuing the legacy of these apples is part of our community’s responsibility for the future of our regional agriculture.
BOULDER
HEIRLOOM
APPLES

Then & Now:
Regional Varieties.

1. Baldwin
2. Ben Davis
3. Cortland
4. Golden Russet
5. Gravenstein
6. Jonathan
7. Tompkins King
8. Wealthy
9. Winesap
10. Wolf River
CONFLICT AS A GENERATIVE FORCE:
PLANET OR PLACE-BASED THINKING?

At the many events we’ve attended this year, in-person and online, we’ve been struck by the diversity of the community in which we operate: conventional farmers, regenerative ranchers, cryptocurrency enthusiasts, hippies, private equity folk, the healthy food crowd, agrarians, permaculturists, republicans, democrats, libertarians, even the occasional anarchist. Truly, the regenerative movement includes all types. It welcomes all.

At Mad Agriculture, we welcome all perspectives and believe that healthy disagreement breeds new ideas. It is far too easy these days to listen only to those with whom we already agree and it doesn’t take long before we find ourselves surrounded like-by-like. Yet, it is only by listening deeply with an open mind that we’ll find that next idea that unlocks ecological and economic value for farmers. To do this work well, we must summon the goodwill to break out of our bubbles, seek out dissents, listen deeply, and find the truth in different opinions. We must work just as hard with people we disagree with than with those whom we agree. At the Quivira coalition, this is called “dwelling in the radical center.” This is what the work requires.

In that spirit, we sat down to discuss a disagreement of our own: place-based vs. planetary thinking. Are the problems we face the result of planetary forces like climate change or the consequence of not focusing on our own place first? Do the best solutions focus on the very large scale or the very small? We hope this conversation illustrates that conflict can be a generative force, that the philosophies that shape us don’t always have to be the ones that divide us, and that different approaches can make our work stronger and our purpose more clear.

Q: SHOULD WE FOCUS FIRST ON PLANETARY PROBLEMS OR LOCAL PROBLEMS?

Tanner: I think it’s clear that global issues are the summation of a bunch of place-based issues. A planetary crisis isn’t created at the planetary scale; it is created locally and then builds up. So the solution must also occur in place. There might be a global recognition or a higher level organization of effort, but the real work has to happen on the local level, farm by farm, field by field, backyard by backyard.

Take flooding. Climate Change (a global perspective) would lay the blame for flooding on erratic and extreme weather. From a place-based perspective, the biggest issue with flooding is soil that can’t retain water, a lack of plants to capture and keep it in place, and the disappearance of wetlands. When precipitation hits an impervious surface like pavement or hydrophobic soils, it becomes sheet flow and ends up in rivers or wetlands, if they remain. Soils with depleted organic matter and areas with sparse or shallow rooted plants allow less infiltration and more surface flow, which means erratic river volumes (floods and low waters). On the other hand, in a system full of wetlands, living roots, and healthy soil, water is held across the landscape and promotes further regeneration, slowly releasing water below ground and reversing the trend toward less flooding and drought. Also, floods happen; there were times when floods were the lifeblood of soil (eg. the Nile River Valley).

Max: You’re right that there is a difference in emphasis between planet and place-based thinking. Thinking about climate change as a planetary phenomenon identifies the source of the problem in global temperature, precipitation changes, carbon dioxide levels and other intangibles. And you’re saying we should think more locally and specifically about where the source of the problem is.

However, I’d note that the scale of the problems we face, in particular climate change, is at a planetary scale. Even flooding, yes, it is true that in one sense flooding is caused by a lack of soil carbon and poor water infiltration. But more and more we see increased flooding and other extreme weather is being driven by climate change. And if we don’t get those big global things right, we don’t have a chance of solving these specific problems locally.

Take another example: more persistent drought in Eastern Colorado and the Midwest. The root cause of this is changing weather patterns that are themselves caused, ultimately, by increased CO2a in the atmosphere. No matter how much we improve water infiltration in the soil we won’t be able to prevent these weather patterns from changing. We have to tackle the problem at its cause, which means addressing CO2a levels. We have to think about the problem from a planetary perspective.

Tanner: Fair enough, and with less rain we really need to use it well. For example, drought is determined not just by the amount of rainfall, but by the amount of water available within in a system relative to what that place needs to thrive. What matters is the effective rainfall, which is all that water that has been held in place by the soil so that plants can grow and rivers and springs can receive a slow and steady influx for more parts of the year. Floods and droughts are related, not just by what falls from the sky, but by what happens on the ground. Drought isn’t defined only by precipitation, it is a consequence of reduced retention and infiltration. Likewise, less rain can happen from a changing climate, but dealing with the highs and lows is place-based.

Additionally, scientists and stewards alike are recognizing that even the global climate has a significant local component. When you think of the Amazon as the lungs and the heart of the world, breathing out air and playing a major role in the water cycle, you see that place-based retention and plant life also impacts the climate and global weather patterns. When a place is dried out, it doesn’t have the water within the system for evapotranspiration, or to form new clouds and then fall again as rain or dew. Plants and soil play a part in creating and utilizing the rain. It’s not just CO2a in the atmosphere, it’s a lack of water in places that creates and perpetuates drought.

Max: Good point. Certainly, I agree there are some really good local solutions that help make our communities health-
icer and more resilient. But, ultimately, I would insist that it’s heightened levels of CO2a caused by industrial production that are causing these problems. And if we don’t think about things from a planetary perspective, the local communities will continue treating the symptoms.

DOES A LOCAL PERSPECTIVE PRIVILEGE OUR LOCAL PLACES OVER OTHERS?

Max: Another concern I have about taking a local perspective is that I want to make sure we don’t privilege our local places over other people’s local places. For example, there’s this argument that’s out there about agricultural intensity that goes like this: if it is the case that organic or regenerative agriculture produces less food; and, if we’re going to have to feed more people in a growing world then, that lost food production is going to have to be made up by producing more food elsewhere. And that probably will happen in places like in Brazil or Thailand, not in Boulder or Topeka.

Agriculturally-driven deforestation is happening at a record pace. And so we need to make sure regenerative agriculture doesn’t create a situation in which we produce less food and drive up the cost of food so that in other places it’s more profitable to grow commodity crops, driving more deforestation. From a climate perspective, we’d be shooting ourselves in the foot, since the rainforest does far more to remove carbon from the atmosphere than soils. But also, from a moral perspective, we would be privileging the farms of Boulder over the rainforests of Brazil. I think that’s a real challenge to the place-based thinking you’re talking about.

Tanner: First, I think the yield reduction is over exaggerated in the difference between chemical industrial farming and regenerative. It depends on the practice and the context, but there are also cases like interseeding Balansa clover into corn that can have in-season yield bumps and add extra forage for grazing post harvest. We’re still learning the how-tos of regenerative ag but the potential is promising and the productive downsides are manageable and shrinking.

Second, deforestation and the loss of wild places is only going to be reduced and restored as regenerative frameworks improve, as chemical industrial ag becomes more expensive in degraded soils or marginal fields, and most importantly as we continually understand the farm as a living system that benefits from life in and around the fields. Wildness, nature, the untamed and the undomesticated is all part of it.

Third, look at the end usage of certain global commodity trades. We are feeding the industrial complex rather than our people. We have a glut of commodities in this nation already and this year looks like we’ll only add to the surplus. The continued market-suppressing need for CRP land and the prices of most commodity crops show that supply is outpacing demand: a system propped up with policies that enable overproduction.

And finally, if we shift our acreage so that we’re growing food, consumers will have more market influence on how crops are grown. If you’re growing an industrial commodity like ethanol, desiccant residues and nutrition don’t really matter; your car doesn’t care if the ethanol-petrol mix is organic. Food becomes us, land health is human health.

On the topic of feeding the world, it’s important to look at the impacts of exporting such a large percentage of our food. When the US floods international markets with our cheap agriculture, it destroys the agricultural systems of these places and diminishes their ability to produce their own food. If we stopped flooding them out with our cheap exports, those places would be better suited to grow their own food again. It’s the removal of a place-based food system that is the problem. Even locally, imagine how many more farmers we could support if we didn’t import as much food.

Max: You make some good points. However, I just don’t think there’s any going back to a place-based food system.

Tanner: Some of the advancements and efficiencies of our twenty-first century technology can be redeployed at a more regional scale. Look at the COVID-induced innovation that has occurred in local food systems and purchasing; it’s easier than ever to go online, pre-order veggies, and scoop them up at your local farm stand. That’s a redeployment of complex supply chain technologies in a simplified local form. The kinks aren’t all smoothed out and it’ll take time for major adaptations but the trend is telling.

Still, you don’t have to grow all of your own food in your own backyard, or even within your state. Areas like our nation’s breadbasket has more land than people so a surplus of food can be grown there and transported to high density places. Also, despite all of our industrial advancements, small scale agriculture has a higher productivity per acre than broadacre. Small acres are more highly managed which is both more expensive and ultimately grows more food. The expense, whether, goes towards peoples’ livelihoods, not the cost of chemical and mechanical inputs. As Bob Quinn would say, more labor means more jobs. Let us not devalue the worth of our neighbor.

Max: That’s a striking argument, but the truth is we live in a globalized world. Changes in wheat production in America do affect the price of wheat in Asia, which does affect the way that people farm there.

Tanner: Look, I don’t want to lose the whole global food system because I love coffee. Coffee doesn’t grow anywhere near where I live. So having no trade is not necessarily what is meant by place-based food. It’s a rebalancing. We’ve gone too far toward the global end of the spectrum.

Max: I’m glad to hear you say that about coffee because I think it’s really important to recognize just how good we have it today. Despite the real challenges we face, it’s hard to deny that the vast majority of human beings in the world today are better off than nearly all human beings in the distant past. Food security, food choices, upward mobility, life expectancy—all these indicators show how far we’ve come in the past few generations.

Tanner: That’s true. Food is cheaper than it’s ever been before, which we take for granted now because we’ve only lived in a cheap food society. But most of us have witnessed the negative externalities that can come with cheap food. We need to produce food that nourishes people and the cheapest calories aren’t always the healthful answer. Good food for all, not just those who can afford the choice.

Max: Let me ask you one last thing: is it fair to say that part of regenerative agriculture is just place-based thinking? Does this all boil down to “Think Globally, Act Locally”? Tanner: For sure. But also think locally. I’ll let Wendell Berry have the last words:

FROM WENDELL BERRY: THINK LITTLE

“We need better government, no doubt about it. But we also need better minds, better friendships, better marriages, better communities.”
Across the world, we are witnessing a revival in ancient, heritage and whole grains. Why? People are increasingly frustrated with industrial grain products and the production systems they originate from. At the same time, ancient, heritage and modern whole grains are delicious, nutritious, and speak of the families and places they come from. They carry story. In the Front Range of Colorado, we are beginning to see a radical shift in grain markets, from soil to consumer and back again. The community of change is diverse and dynamic. Mad Agriculture is playing a role in figuring out what varieties grow well in the Front Range of Colorado, how can they be grown regeneratively, and what different grains are best suited for.

Our work began in earnest last year at Andrews Farm. The work continues. Working with seed takes time. Here at Mad Ag, we are beginners. So, we’ve partnered up with MASA Seed Foundation to help us understand how to live with, grow with, tend and steward landrace grains. Rich Pecoraro, founder of MASA Seed Foundation, has worked with seed for over 40 seasons. His mentorship of Jared Hagood inspired Lineage Seeds, and many others. Mad Ag is learning from and working with Rich, Daniel Golly and others of the MASA team to test dozens of varieties this year ranging from wheats, barleys, oats and ryes, which have been collected from all over the world. We are taking a 'landrace' approach to sorting out which varieties work well in our region, observing the success and failure of many varieties year after year to allow them time to regionally adapt to our environment. This process takes years, if not decades, and differs from the more sophisticated and scientifically-intensive approach of breeding and hybridization that is employed by stellar organizations, like the Land Institute or the Bread Lab at WSU.

We are using organic and regenerative approaches, and observing growth habits, plant health, yield and baking qualities. We’re examining agronomic performance in parallel with market potential. The diversity and potential use of grains is astounding. Palouse Heritage gives us a glimpse into wheat: “Just as there are different classes of grains (i.e. rye, wheat, barley, oats), wheat varieties are further categorized based on their physical characteristics. Wheat (Triticum aestivum) has been divided into several general classes based on kernel texture (soft, hard), and kernel color (white, red), and seasonal habit (fall/winter, spring). Hard red spring wheats are highest in protein with medium-strong gluten, the protein that provides elasticity to dough, so are used for yeast breads and hard rolls. Hard red winter wheats have the strongest gluten and are used primarily for pan breads and buns. Soft red winter wheats have medium protein and weak gluten for flat breads, pastries, and crackers; and low protein, weak gluten soft winter and springs are used for pastries, noodles, and batters. High protein and strong gluten durums are preferred for pasta, macaroni, and spaghetti.”

We are working closely with Lewis Family Farm, Jones Family Farm, Moxie Bread Company, Noble Grain Alliance, Pastificio, Root Shoot Malting and many others to explore fit between grain and product, farmer and market, seed and regeneration of soil and soul. It’s take a community to create change, and we are honored to be working with beautiful grains and wonderful people.

Philip Taylor
Epitaph

Do not bury me
far from the leaves of the forest floor.
Let me decay quickly
to live on in the lives of others.

Lay me down among the trees
at the headwaters of Basin Run,
the place I took most from.

Let birds tear me asunder,
called to the perfume of decay
that rides the rare wind
touching the heart of the forest.

Disentangle me bacteria, into minerals,
so that I can nourish the plants,
repaying my debt to the Menhaden.

Let the rain run me deep into the soil,
so that some tulip poplar
may find, lift and form me
into a gigantic flower
to be loved by a bumblebee
in search of nectar.

And should I escape the hunger of the forest
and run with the water toward the sea,
may the oysters make good on my remains.

Philip Taylor
Resilience is an inescapable buzzword these days, and for good reason. With the global pandemic caused by COVID-19, the cracks in our society have been exacerbated. If there was a doubt that our global food system was resilient before, we now know that it is not. For example, COVID-19 transmissions between employees in meat processing plants has closed critical points of our supply chain and made the price of beef skyrocket.

These cracks in our food system are leaving people in dire situations. Sometimes it is almost too much to take in, making it difficult to identify where these cracks are starting and how we fill them. We have a sense that the way forward is through this concept of resilience, but I have found that many people don’t really know what the word even means.

I cannot count how many times I’ve been told: “Native Americans are resilient people.”

I’m native. I’m Coeur d’Alene. I’m a writer and a food systems professional. And of course, I’m a resilient person. You don’t survive growing up in an Idaho border town as a Native girl without a dash of resilience.

For a long time, I thought resilience meant toughness, agility, and landing on your feet like a cat that got thrown out a ten-story building. I thought it meant not letting things impact you and bulldozing through no matter what is thrown at you. I thought its definition was strictly confined to survival. I thought resilience was confined to one person.

When people told me that native people are resilient, I thought it was more in a historical sense. You are a descendant of people who survived disease, survived even with massive losses of land, and stripping of culture. This made sense, individual native people could be resilient because somewhere in their DNA there was a toughness that was passed down and now it is woven through my genes as well. I didn’t see resilience as a trait that could be outside of individuals.

Until recently, I didn’t know that resilience could be a characteristic of institutions, let alone something as massive as a food system. Resilience is not just a synonym for tough.

Resilience has two parts:
1. Surviving a shock
   a. Rebounding from that shock stronger and better equipped to handle another shock

The second part is the most important - bouncing back stronger.
So what does that mean for a food system? What does that mean as a Native person hoping to make positive change in the food system to support the thousands of Native American farmers and ranchers during the time of COVID-19? How do we build proactively resilient systems that are strong before the shock happens? Why do any of these theoretical questions matter when people are dying and hungry right now? These are the questions that keep me up at night during quarantine.

I don’t think there is a simple answer to such a complicated problem. Society, the food system, and agriculture, in general, are too complicated to have a silver bullet solution, this much is clear.

What I do know is that our most important resource is good, honest people and the relationships we have between those good and honest people.

I find that people are surprised to find that behind white folks, Native Americans are the largest ethnic group of producers in America. Native Americans and Alaska Natives makeup 79,000 farmers and ranchers on 59 million acres generating $3.5 billion in agricultural sales. Native producers trend younger and are more likely to be female than the national average. Our farms and ranches make up 6% of the country’s food-producing land base, but our sales account for 2% of US ag sales.

These 79,000 Native producers have something in common with me. They have resilience baked into their DNA just like I do. As individuals, we are resilient. But, we can improve our collective resilience for both the Native American and US food systems. COVID-19 has not only taught us that we need this, but that we need it now.

I believe that a thriving food system requires using our most powerful resource: good and honest people—both Native and non-native alike—and the connections between them. And yet I have found that many non-Native people don’t reach out to Native people. This kind of partnership has not been a priority. Non-native people are so scared that they will make a mistake that they don’t even try to have a relationship with us at all. And when Native people reach out, we are asked to mimic their dominant and failing agricultural trends, when we have been the ones farming this land for thousands of years. This impasse is not sustainable for our community nor our land, and it sure as hell is not the right way to move forward in a resilient food system.

My advice is to just try to connect, even when it is uncomfortable. The stakes are too high to be scared. And we cannot do it alone.

The resilience of a food system requires togetherness. Resilience requires adapting together, learning from each other, and finding strength from other individuals to build a stronger system.

When I think about how the food system bounces back stronger after COVID-19, I hope it involves collaboration between Native and non-native producers. It could be the beginning of a beautiful friendship.
Every weekend my wife Hannah and I go to the Amish market in Pennsylvania for fresh-baked donuts—the best in our town. We eat our donuts and wander the aisles of booths selling jars of pickled and fermented vegetables, meats, cheeses, and produce. But on one Saturday, passing a produce stand, Hannah turned to me and said, “What are oranges doing here?”

It was a good question. Growing up in southeastern Pennsylvania, I had seen Amish farms. They were easy to spot. The buggy, the clothesline, and the absence of electrical wires were tell-tale signs. I had seen the teams of men baling hay by hand, pyramidal mounds dotting fields, unlike the round or rectangular ones created by larger farm machinery. These were sights I had become used to in the Pennsylvania piedmont, but I never once saw an Amish farm with an orange tree. The sight of citrus fruit that morning, piled high behind a man in a straw hat and long gray beard, pierced through our preconceived notions of where we were and what we were doing. Our understanding of who the Amish were and what it meant to shop local was challenged. It had always been my understanding—as I had been taught in the fourth grade—that the Amish were subsistence farmers, living on food that they had grown on their own land. Knowing that this fruit could not have been grown in the Northeast in the dead of winter, my vision of the Amish was shattered. The whole market experience began to feel like a scam. I began to wonder if I was seeing the “real thing” or a clever gimmick. At the same time, I wondered if it was any better to shop at the Amish market than the supermarket.

To try to answer these questions and sort out these feelings, I got in touch with Brian Snyder the director of the Initiative for Food and AgriCultural Transformation (InFACT) at The Ohio State University and former executive director for the Pennsylvania Association for Sustainable Agriculture (PASA). After years of working in sustainable agriculture in the states with the top two highest Amish populations, if anyone could help answer these questions, it was him. We talked on the phone as he drove to his own small farm in central Pennsylvania.

“Time is as much diversity among the Amish as there is among the non-Amish. They have a diverse range of farming practices from organic to industrial and everywhere in between. What they grow and what they buy to sell later are not parts of their religious conviction,” said Snyder. There is a general misconception that the Amish are one homogeneous group. Ultimately, the Amish are subject to the same market forces as everyone else, and their responses to those forces, as seen in their agricultural practices and foodways, are just as variable as “the English,” what they call the non-Amish.

Snyder explained to me that to answer my question about whether or not I was shopping local depended on the definition of local I was using. He said, “On average, every dollar that enters the Amish community, changes hands seven times within the community before leaving it.” The goal is to keep money as local as possible. Local here, does not necessarily mean geographically, but socially and economically. For the Amish, getting money into the community is only a first step. Keeping money in the community, by buying and selling within it, ensures their long-term viability.

The oranges we see may not have been grown geographically close, but they arrived at the market through short supply chains that are socially and economically close. Put differently, not everything sold by the Amish is grown on Pennsylvania farmland (our donuts and coffee are no exception), but the transactions which brought these items to this market have strengthened community bonds. If the fruit, vegetables, dairy, meat, and baked goods at this market are not necessarily produced locally—no less sustainably—the social proximity of their supply chains means that an infrastructure exists that could be used to foster more local, and sustainable production. There is more than one dimension to creating a long-lasting local food movement, and attention to the diversity of dimensions, especially the building of community bonds, will no doubt lead to more vibrant, sustainable food practices.

The Amish do not have a perfect food system, and they should not be romanticized as some sort of ideal primitive, agrarian culture. Between over-fertilization contributing to nutrient runoff and the mistreatment of animals, as many of their critics point out, the Amish model of farming would perhaps do more harm than good if it were universally adopted. Still, their emphasis on social and economic proximity offer us alternative ways to consider how we reach a sustainable future for agriculture. Like the horse-and-buggy shows us, there is more than one way to get where we are going.
Racism must end. Everyone must get to work. I’m guilty of saying “I am not a racist.” Yet, as Ibram Kendi, author of How to Be An Anti-Racist said, “Denial is the heartbeat of racism.” As a white person, my lineage and cultural lens is born of a past and present that is filled with violence and colonization. Privilege has shaped my thoughts, feelings and actions. Privilege is the belief that if something doesn’t affect you, it doesn’t matter. Since George Floyd’s death, I’ve been glued to the videos, images, stories that are unfolding. I watch my children pace the yard in rage, wondering ‘what can I do?’ As things unfold, layers of myself have been peeling back. Unexamined prejudice. Passivity. Inaction. I’ve come to realize with more depth and urgency that I and Mad Agriculture have tons of work to do. We’re early on the journey. Structural racism is everyone’s business to abolish. And we’re complicit. I’m sure we’ll make mistakes. I know there are ways to donate, sign petitions and join rallies. There are ways to work that are deeper, bolder and needed. I need to discover those. Show up. Listen. Support. Build relationships. It’s going to be fast, slow, messy and absolutely critical.

Mad Ag is all about regeneration, and regeneration encompasses everything. Healing our relationship to land goes hand in hand with healing our relationship to people, especially those that have been marginalized, terrorized, ignored, oppressed, enslaved, colonized and separated. We must inspect the norms, policies, practices and laws of society. First, we must inspect and untangle ourselves. As within, so without. Transform ourselves to transform the world. We must have the courage to acknowledge the racism in ourselves. Our work at Mad Ag will fail if we don’t help end racism.

Philip Taylor
Over the past few years, we’ve bumped into Mad Agriculture in so many places—both virtual and real—but the first time we met Phil Taylor was on a summer day in Salina, Kansas.

At the time, we were running a restaurant in San Francisco called The Perennial, championing carbon ranched beef, regenerative agriculture, and Kernza sourdough, which is what brought us to Kansas for an event that the New York Times referred to as “an intellectual hootenanny.” There we were, leaning on hay bales, talking with a poet/bio-geo-chemist, wearing a perennial grains trucker hat, who was, coincidentally, also trying to unlock the potential of black soldier flies.

It’s hard to believe how much has changed in the past three years, or even in the past three months! We definitely aren’t in Kansas anymore. We’ve closed The Perennial to focus on our nonprofit, Zero Foodprint (though we’re still partners in a blissfully weird restaurant called Mission Chinese Food); Mad Ag has launched The Perennial Fund, and built an impressive set of regenerative programs; and we’ve both gotten Conservation Innovation Grants from the Natural Resources Conservation Service. Through all these changes, we’ve kept in touch as we’ve all tried to solve big societal and environmental problems through food and farming, and ultimately, it seems that we independently arrived at the same straightforward idea, which is pretty far afield from black soldier flies.

We both believe that saving the world comes down to bringing people together to improve soil health, a few acres at a time. Historically, the good food movement has championed great farming, but the theory of change has been focused on creating demand and market premiums for great products, and then merely hoping the market changes in response. Zero Foodprint is different. We’re bringing together the expertise of scientists, agro-ecologists and farmers to make it possible for all of us to add a few cents per meal and directly make change (instead of just a few of us paying a lot and making good choices).

Right before the pandemic hit, we launched a program called Restore California in collaboration with our state’s Healthy Soils Program. We’ve teamed up with Mad Ag to bring an analogous program to Colorado.

The idea of Restore Colorado comes down to resilience. Citizens are increasingly aware of the importance of a food system that can weather major crises like coronavirus and climate change. Restaurants are planning for a new food economy that is unlikely to correspond to their original business plans. And regional governments are trying to combine existing carbon reduction goals with a just recovery that reaches all sectors of the economy.

As we respond to the coronavirus and the climate crisis, we must chart a path toward an entirely new business as usual. And each of us has the opportunity to be part of creating an innovative and resilient solution to the most urgent challenges of our lives. Investing in the prosperity and sustainability of our regions is something we all want, and making it reality is as simple as putting a few cents per meal toward healthy, living soil on local farms.

We’re so excited to be working on this with our friends at Mad Agriculture, and we can’t wait for the day when we can come together in person, preferably over a good meal.

Karen Leibowitz
& Anthony Myint

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JOIN THE MOVEMENT

CALIFORNIA


AROUND THE US


AROUND THE WORLD

Carmen Restaurant (Colombia) . Hyggestund (Denmark) . La Neta Norrebro (Denmark) . La Neta Vesterbro (Denmark) . Monoo (Hong Kong) . noma (Denmark) . ol & brod (Denmark) . Ramen to Biuru Norrebro (Denmark) . Ramen to Biuru Vesterbro (Denmark) . Ramen to Biuru Usterbro (Denmark) . Ramen to Biuru Frederiksberg (Denmark) . Selma (Denmark) . Vesterbro Chinese Food (Denmark) . WarPigs* (Denmark)

MORE INFORMATION

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When I was six years old my grandmother taught me how to make deviled eggs so that I would “never go to a party empty handed.” In my family, good food is the common thread at any gathering. After my grandmother taught me to never show up empty handed, I started baking nonstop and eventually made my way into the world of sourdough. Since moving to Boulder, my perspective on baking has changed.

Boulder has created unique momentum behind the growing, milling, baking, and eating of heritage and ancient grains. Within the past couple of years, I have encountered three farms growing out experimental grains and two bakeries milling, baking and selling regional grains onsite. As my personal journey into sourdough experimentation has continued to deepen, I have had the opportunity to work with varieties such as Rouge de Bordeaux, Spelt, Blue Emmer, Yecora Rojo, Rye, White Sonora, Turkey Red, and Clark’s Cream. Once I started baking with fresh flour it became difficult to turn back to the anonymous bags of all-purpose I had been finding in the grocery store. I often found myself diving deep into research on each new variety I came across to establish where it came from and how others have used it. Other times when working with a new variety, I would simply let my intuition take over, jumping into the experience blind. With each iteration I noticed the nuances of these novel grains in my baking. I began to treat whole wheat flour less like a uniform ingredient and more like I would a spice in my cooking. I can now tell you that Rouge de Bordeaux has a distinctly cinnamon-y aroma.

One morning I stopped by Dry Storage — a boulder bakehouse sourcing tens of thousands of pounds of grain from Jones Farms Organics in the San Luis Valley — to pick up a pound of whole wheat. I chose Yecora Rojo simply because I’d never heard of it. When I opened the lid and took a sniff, the flour smelled borderline funky, making me wonder if it had already gone off...freshly milled wheat can spoil like produce, which is why I keep mine in the refrigerator. I asked one of the bakers how he usually incorporates Yecora into his baking. He said that he uses it like other hard red wheats when baking bread but that when it’s milled it kind of smells like bananas, making it a good choice for sweet applications. I opened the lid and smelled it again. Indeed, it smelled like bananas. The perfect segue into this recipe.

I’ve used one banana bread recipe my whole life. It was the recipe my mom used when I was a kid and it’s the one my brother and I use frequently — like twice a month frequently — as adults. The recipe was passed to my mother by Mrs. Pat Swavley, the mother of her childhood best friends and neighbors in Allen-town, PA. I have never sought another recipe because this one has never failed me. I’ve made multiple modifications out of necessity or curiosity over the years and it still produces a balanced bread. During these unknown and unpredictable times, our personal and communal resilience have been tested. This recipe has stood the test of time, altitude, and substitution. It has endured first, second and third trials by friends and family members across the country, and has worked well with many of the heritage and ancient varieties I have experimented with. My mom has had the recipe written on an index card in California for decades. I have since copied it onto my own index card, making it a constant whenever I moved locations or jobs or kitchens. Now, with permission from the powers that be, I am passing this recipe to you all. I hope it provides you some comfort and stability in this time of uncertainty.

A GRAIN REVIVAL RECIPE

BANANA BREAD

Makes: 2 loaves, 12 muffins, or one 9 x 13 inch pan.
Start to finish: 5 hours 10 minutes

Ingredients:

Dry:
- 2 ½ Cups Whole Wheat flour, I used Yecora Rojo milled very fine*
- 1 ¼ scant tsp baking soda
- 1 ½ tsp salt

Wet:
- 1 Cup white sugar*
- ¾ Cup Oil, I prefer Olive oil but a neutral oil will do (Canola, grapeseed, safflower...)
- ¾ Cup Buttermilk*
- 3 medium eggs
- Optional: walnuts, chocolate chunks, peanut (or other nut), butter swirled, sesame seeds

Optional:

*If your whole wheat flour is course-milled (visible bran flakes, heavier and far darker than an all-purpose flour), I recommend using 50/50 Whole Wheat to All Purpose flour, so the bread is not too dense.

* I like to use 4 bananas and cut the sugar to ¾ cups. Makes for a more “hydrated” bread.

* If you do not have buttermilk, which I often don’t, you can mix a tablespoon of fresh lemon juice into ¾ Cup milk of your choice and let sit for 5 minutes before incorporating. I’ve had success with non-dairy milks like oat and macadamia!
Directions:

Preheat oven to 350 °

Oil your loaf pans. I also like to line my pans with parchment paper for guaranteed easy removal.

In a medium bowl, whisk together flour, baking soda, and salt.

In a large bowl (you're going to add the wet ingredients into this bowl so make sure it is large enough), whisk together sugar, oil, buttermilk, eggs, and mashed banana until mixture is one loose batter. I like to leave one banana out and mix it in at the very end, leaving some larger pieces of banana in the batter, which will then turn into yummy caramelized banana bites in the finished bread. Your call.

Add dry ingredients to wet ingredients in three installments. Using a wooden spoon or rubber spatula, stir to combine. If you’re adding nuts or chocolate chunks now is the time to incorporate them. Notice I say chunks, not chips. I prefer chunks and I prefer to cut them up myself. That way you can get those tiny chocolate flakes or shards in the bread too. Stracciatella style.

Distribute batter into pans. If you want to incorporate a nut butter, drop spoonfuls into the batter and using a butter knife, gently cut back and forth the length of the pan to create a swirl.

Check the bread after 25 minutes. It should have risen to its full height but is still raw in the center. Rotate the pans and bake for another 10 ish minutes. To ensure it is done, pierce the bread with a skewer or knife. If it comes out clean, it is done. Remove loaves from the oven.

Leave in the pan and let it cool on a wire rack. When bread is fully cooled, remove from the pan. Serve with coffee or tea, with fresh berries, or just a schmear of butter.

To store: I like to leave the bread in the pan and loosely cover it with foil. The bread will lose its crunch if it comes into any humidity. It should keep this way for up to four days (I can’t be certain because mine is usually consumed within two days). To extend its shelf-life, you can also keep in an airtight container in the fridge.

Colorado Grain Revival Champions:

Colorado Grain Chain
Moxie Bread Co.
Dry Storage
Noble Grain Alliance
MASA Seed Foundation
Black Cat Farm & Restaurant
Aspen Moon Farm
Root Shoot Malting
UCCS Grain School
Lewis Family Farm
Jones Family Farm
Mountain Mama Milling
Troubadour Malting
Piz Farms
Hobbs & Meyer Farms
Pastificio Boulder
Dry Land Distillers
The Grain Lady
The Family Jones Distillery
and more...

Check out the Colorado Grain Chain for more information on the movement.
The Regenerative Supply Web Weaving project is a partnership between Mad Agriculture and Terra Genesis International. Students from the University of Colorado’s Masters of the Environment program are working closely with Mad Ag, TGI, and other leaders in the growing regenerative economy to co-develop a guide and training program for regenerative supply practitioners to work with brands to create regenerative supply systems.

The project focuses on the growing need to help food and fiber brands develop regenerative supply webs to consciously regenerate agricultural systems and develop and empower communities. The team is developing a toolkit to define and provide the essential thought frameworks, resources, networks, and skills necessary for traditional supply practitioners to become regenerative supply practitioners. The toolkit will be nuanced and complex, yet tangible and accessible, compiling integrated knowledge, research, and technology to evolve capacity in understanding regenerative supply. Current and future supply practitioners will pilot the toolkit with brands to guide them towards a deeper embodiment of regeneration in their business strategy, operations, and leadership.
WEAR THE MOVEMENT.

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This issue is dedicated to . . .

ELIZABETH BLACK

Thank you for your continued support & dedication to the movement.