THE GULCH ENVIRONMENTAL FOUNDATION

2022

Annual Impact Report

Letter from Founder and Team

It has been a year of action and education for the Gulch Foundation, with most of our activity focused on our flagship project Rainmaker Farm. At Rainmaker Farm, we are transitioning to regenerative agriculture, sequestering carbon, and conducting outreach and education. The year 2022 was the year we literally and figuratively began to see the fruits of our labor. We planted an orchard and harvested our first wheat crop. The cover crops germinated and covered our land in a soft green carpet, adding nitrogen and carbon back into the soil. We also welcomed two types of livestock, European Honeybees, and cattle onto the farm. The first calf was born on Rainmaker Farm, affectionally named "Slider." We also welcomed the public to Rainmaker Farm, with multiple on-site educational and team-building events.

World events also drew into sharp focus the importance of the work The Gulch Foundation is doing. The Intergovernmental Panel on Climate Change (IPCC) released the sixth assessment report on the Impacts, Adaptation and Vulnerability from climate change. This report highlighted the importance of reducing the amount of carbon dioxide in our atmosphere. As the cost of synthetic fertilizers increased dramatically and became more difficult to get, the benefits of farming in a sustainable way with minimal external inputs became increasingly important.

Like all farmers, we are heavily influenced by the whims of the weather. Looking back at the 128 years of climate data, this year has been the 58th driest on record for Noble County, where Rainmaker Farm is located. Much of the region was in severe drought, with many areas not getting appreciable rain for over 50 days. Crops were severely reduced, and pasture growth was stunted. Our team worked hard to keep the 150 orchard trees, that we planted earlier in the year, watered and some of the trees began to bear fruit. The orchard trees and all the newly planted border trees had to be watered by hand, and we sustained losses to those due to the difficult conditions during the first year of establishment. We remain optimistic about a good fruit harvest in 2023. Also, as we grow a variety of crops – we were still able to harvest our wheat. This experience will inform our planting plans going forward.

Under current climate scenarios, summers in Oklahoma will become increasingly hot and dry. With droughts like this predicted to become more frequent by 2050, it was a perfect year for us to learn how to farm sustainably, effectively, and profitably under these conditions.

THE GULCH ENVIRONMENTAL FOUNDATION

ANGEL LANCE
Founder

AVIVA ROSSI, PHD
Research Director

THE GULCH ENVIRONMENTAL FOUNDATION

MISSION

Rehabilitate the environment and take action to solve the current climate crisis through carbon sequestration projects.

VISION

Ecosystem services are finite and must be replenished. To restore the ability of the global system to sequester carbon, every incremental step toward a lower carbon future is important. Given the scope of the challenge before us, everyone is welcome at the table to solve the climate change crisis.

Overview

The Gulch focuses on both direct and indirect projects to rehabilitate the environment, with a focus on climate change mitigation. Our direct-action impacts includes both on the ground project work and contributing our time and resources to other charitable organizations doing on-the-ground work. Our indirect work focuses on education of both youth and adult audiences on the importance of conservation and limiting our global carbon footprint.

Our activities are broken down into three categories, which are described in detail in the following sections:

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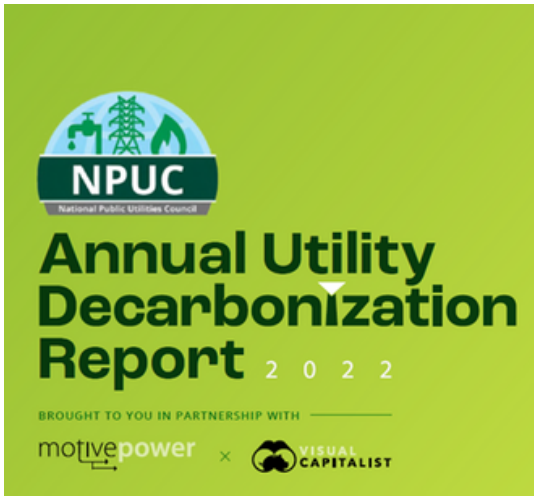
Volunteer To Support Existing Environmental Projects

The Gulch leverages its resources, both through staff and affiliate sister companies, to multiply the impact of existing charitable and governmental projects relating to the environment. This year the Gulch ramped up our support of existing environment projects. In line with our vision of valuing everyone's contribution to solving the environmental challenges before us, these activities spanned a wide variety of organizations doing education and outreach within industry, empirical research, and environmental conservation.

NATIONAL PUBLIC UTILITIES COUNCIL

The Gulch worked closely with our sister organization, who we share a Founder with, the National Public Utilities Council (NPUC) on their mission to *"Inform, educate, and facilitate solution design, implementation, and adoption for decarbonization practices and solutions to decarbonize the utility industry and achieve net zero emissions by 2035."*, including dedicating staff time to provide technical guidance on the Annual Decarbonization Report for U.S Utilities, ranking the Top 30 U.S. Investor Owned Utilities (IOUs) and providing market incentives for decarbonization. The report has been downloaded over 2000 times, including by key stakeholders in the utility and clean energy sectors. It is being leveraged to start discussions that will foster industrywide collaboration and expedite the path to a carbon neutral future.



ENVIRONMENTAL GROUPS

As management of working lands is such a crucial aspect to land-based carbon sequestration and biodiversity conservation, the Gulch staff worked with Marin Conservation League (MCL) to coordinate a speaker panel on "Conservation in Working Lands" to discuss conservation potential on farmlands and water district lands, with speakers from the local water district, Audubon Society, and Point Blue Conservation Science.

SCIENCE

The Gulch staff dedicated time to providing Peer Review for scientific journal articles on climate impact projects. Peer Review is a crucial part of building scientific knowledge, assuring that published articles stated conclusions match their observations, and as a science-based organization we value supporting the processes that builds empirical knowledge.

OTHER CONTRIBUTIONS

In addition to our work on environmental projects, the Gulch Team also contributes their own time to many other organizations.

Two of those particularly impactful organizations are BuildOUT California and Students Rising Above (SRA).

BuildOUT California

BuildOUT California is the world's first LGBTQ Industry Association dedicated to the sustainable growth of LGBTQ owned and certified businesses and their allies, in the fields of Architecture, Engineering, Construction Services, Real Estate Development, and Related Industries. As a founding member, our founder has committed pro bono staff hours to provide program management, strategy consulting, organizational development, and technical assistance with the goal of growing the organization and further enabling LGBTQ equality.

Students Rising Above (SRA)

Students Rising Above (SRA) is dedicated to impacting the futures of low income, first-generation college students who are committed to education and overcoming poverty. Our founder has supported the SRA organization development and students through program donations, hosting development seminars, and summer internships. In 2021, our intern helped produce a sustainability report, reporting on ESG's as well as annual carbon emissions.

Berkeley Earth

The Gulch founder is a new board member of Berkeley Earth, a non-profit organization which developed a climate model specifically aimed at addressing some of the concerns of climate change deniers.

Future Work

We look forward to expanding our work to include collaborations with multiple other non-profits in future years.

> ***"The care of the Earth is our most ancient and most worthy, and after all, our most pleasing responsibility. To cherish what remains of it and to foster its renewal is our only hope."***
>
> *– Wendell Berry*

Foundation Initiated Environmental Projects

The Gulch Foundation Initiated Environmental Projects will protect, preserve, and renew the environment. Our initial flagship project, and the focus of our efforts in 2022, is Rainmaker Farm. Our Rainmaker Farm project meets our overall goals while also combating climate change through soil carbon sequestration.

RAINMAKER FARM

Our boots-on-the-ground activities kicked into high gear in 2022, and change is visible already. The border trees, providing perches and windbreaks around our field, have been planted. The Barn Owl nesting boxes are up. The orchard is established and getting stronger. We saw some peaches on the trees, and corn, squash, zucchini, and okra started growing from our Milpa mix, and the wheat made it to harvest. There are cattle grazing down the thatch in the grassland.

Our projects are working to do good on multiple fronts: carbon sequestration, regenerating soil, make food for those in need, plant diverse crops for stability in changing times, and providing habitat to support our farm as part of the larger matrix of natural systems in the region.

We have been keeping our individual donors updated on farm progress quarterly, with individualized donor impact reports. These quarterly updates inform donors about the activities on the farm, and exactly where their donation was used.

On Rainmaker Farm, our donor-sponsored activities are broken into 7 categories: University Involvement Support, Diverse Planting, Livestock Incorporation, Cover Cropping, Farm Equipment and Supplies, and Infrastructure. Activities in those categories are expanded upon below.

UNIVERSITY INVOLVEMENT SUPPORT

Following field sampling for soils in 2021, in 2022 soil samples were processed and analyzed at the Oklahoma State University labs. Baseline soil sampling and analysis for Rainmaker Farm is complete, and final reporting is available on our website. This baseline will allow us to quantitatively demonstrate the effects of the changes land management practices we are implementing.

> ***"Essentially, all life depends upon the soil--There can be no life without soil and no soil without life; they have evolved together."***
>
> *- Dr. Charles E. Kellogg*

DIVERSE PLANTING

ORCHARD (PERENNIAL)

Our orchard was planted during a public participation event in April. Over 3-dozen varieties of orchard trees were planted from multiple species, including peaches, apples, pears, and a variety of nuts. These species were chosen for their current and future suitability for this region, good cross-pollinator pairing, as well as a wide range of phenology (blooming/harvest times) to provide to buffer against weather impacts on harvest. A border of 132 carpet roses was planted along the edge of the orchard to support pollinators. As these trees were planted at the start of a severe drought period, these trees took a lot of active care to keep alive. The trees were hand watered using a water truck from the time of planting until some rain finally returned in late 2022. We spread an entire round bale of straw around the base of these trees as mulch to help them retain moisture as they became established during drought conditions. Protective deer fencing was also added around many of the young trees. This fencing also kept the mulch in place.

MILPA (ANNUAL)

We planted 10-acres using a Milpa-based seed mix. Milpa is a cropping system, originally developed in Mesoamerica, using multiple species that complement each other for both what the plants need for growing, and dietary needs for people. In our milpa mix we used a mixture of 40 different species including types of: flax, radish, turnip, collards, pea, crimson clover, beet, chard, sunflower, okra, popcorn, cowpeas, mung beans, melons, cucumbers, pumpkins, gourds, watermelons, and squash. Due to the drought, the Milpa crop was stunted and not harvestable. However, many of those species were also soil builders, so this functioned as a cover crop that they will contribute to the regeneration of Rainmaker Farm's soils.

WHEAT (ANNUAL)

Our first crop of no-till winter wheat was harvested. Some weeds were mixed in while growing, however the grain elevator can separate them easily. Some members of our team even hand processed some of the wheat to bake bread! The next season's wheat was planted this fall using no-till methodology.

LIVESTOCK INCORPORATION

REMOTE LIVESTOCK

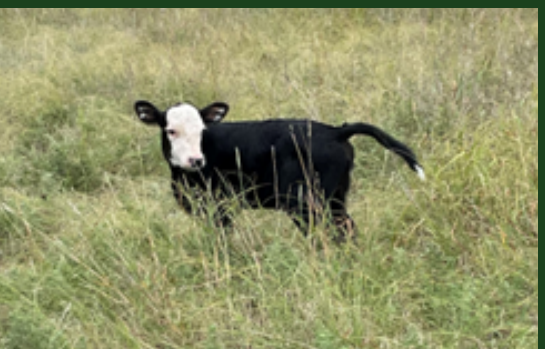
Incorporating livestock allows for onsite nutrient cycling, however you don't need to have the livestock onsite to incorporate their benefits. We obtained 25-tons of chicken litter from an organic chicken farm and spread it over the northeast field, which is growing no-till wheat. This provided the phosphorus and organic material to help fertilize and rebuild the soil at Rainmaker Farm. Cattle manure was also obtained from a neighboring farm and dispersed near the border trees to provide additional nutrients in the otherwise depleted soils.

CATTLE

Rainmaker Farm introduced 20 cattle (12 cows, 1 bull, and 7 calves), which will be used to control thatch in the established grassland area, and assist with nutrient cycling of that area. The estimated Residual Dry Matter (RDM; the older dried out plants from past growing seasons) at the start of the grazing was 4000lbs/acre, and these cattle stayed on Rainmaker Farm until the RDM was reduced to 1000lbs/acre in the early winter. This is using a similar strategy to mob grazing, with short-duration high intensity grazing until the cattle are moved to another pasture. In this case, as we have a comparatively small area that is used for grazing, this is accomplished through collaboration with neighboring farms.

EUROPEAN HONEYBEES

Four honeybee colonies have now been established at the farm as a source of honey and pollination. Four hives were assembled. Two of the hives are traditional Langstroth hives, and the other two are a newer designed called FlowHive. We are comparing the success of these different hive types. Our four honeybee colonies have been thriving. Additionally, we added new queens to improve the stock. Due to the drought, one of the hives didn't produce enough honey to survive winter, and was combined with another hive. Therefore, we have three hives that are well prepared for winter at the close of 2022.



COVER CROPPING

Cover cropping is beneficial to regenerative farming in many ways. It protects the soil from erosion. Many species replenish essential nutrients, such as nitrogen, in the soil. The deep roots from native species also help sequester carbon. Cover crops can also provide vital habitat for many native species and beneficial insects. This year we planted 54 acres of native grass, 25 acres of pollinator habitat, and 30 acres of soil building cover crop, developed in collaboration with the Natural Resource Conservation Service (NRCS).

In Q3 of 2022, our soil building cover crops was going to seed, along with some undesirable weedy plant species. We swathed the fields into rows for prescribed burning as part of invasive weed control. We are preparing a more comprehensive Integrated Pest Management plan for this in 2023.

FARM EQUIPMENT & SUPPLIES

Additional supplies were purchased for Farm Day activities, for volunteers to assist with planting, protecting, and watering plants, and for site clean-up. These will provide the equipment needed for many future volunteer workdays.

Rainmaker Farm also purchased a small tractor to use onsite for planting and farm maintenance.

INFRASTRUCTURE

This was a big year for infrastructure at the farm. We got a barn, electricity, rural water, a septic system, and a driveway.

TINY HOUSE

The tiny house was anchored to the ground (this is tornado country after all), and a deck was built along the perimeter of the house to provide additional space to gather. This came in very handy when the school groups were visiting.

SMALL BARN

We also built a small barn near the tiny house. This allows us to securely store equipment and supplies onsite, while providing a shady gathering spot for visitors. The barn was already used for the visiting robotics club to set up their robots.

BORDER TREES

In addition to the 106 border trees planted during Farm Day 1 and 3, which provide a windbreak and habitat for beneficial birds, during Farm Day 2 we planted 100 lavender plants along the border trees for additional pollinator habitat.

BARN OWL BOXES

As Rainmaker Farm is using ecological pest management, we are installing structures that encourage beneficial birds to inhabit the farm. Three Barn Owl boxes were installed. Two on poles, and one mounted to a tree in the riparian corridor.

FENCING

The fencing around the grassland area was repaired so it can securely hold cattle.

COMPOST BIN

We now have a large compost bin, which will allow us to compost any food waste onsite to use as soil amendment. This will reduce the need for sourcing external fertilizer.

SOLAR WELL

By the end of 2022, there should be a solar well installed. In the fall, we met with a well driller onsite and chose a location. A solar well will be crucial for dry years like this one when the creek does not flow above the surface.

RAINMAKER FARM MANAGEMENT

INTEGRATED PEST MANAGEMENT

As Rainmaker Farm is being managed as a no-till and organic system, creative integrated pest management is a necessary part of our management system.

BARN OWL BOXES

We are using Barn Owl Boxes to assist with rodent control. The boxes were just installed this year (see Infrastructure Section), and it often takes a few months for the owls to find and use new nest boxes, so we have monitored periodically since placement. Markings on the exterior of the boxes showed some visitors to the boxes. We added wood mulch this fall to encourage nesting.

PRESCRIBED BURNING

Fire is a natural part of regeneration in natural systems, and can be used for many benefits in agricultural systems as well. As we had an abundance of weeds in some of our annual crops, we used prescribed fire at the end of the growing season to reduce the weed seed bank. This also releases many of the nutrients from the stalks of crops back into the soil for reuse by next years crops.

MONITORING

Our wildlife cameras continue to show the importance of the riparian corridors to wildlife movement, capturing bobcat, coyote, raccoons, and deer.

TEAM

Our team is growing, and we welcome farmer Kellan Hostetler and beekeeper Zachary Royko to the Gulch Foundation. They were both instrumental to Farm Days as well. Kellan's family are multi-generation farmers, with property neighboring Rainmaker Farm, and he does the on-the-ground farm management at Rainmaker Farm, and is an invaluable source of guidance and information. Zachary cares for our new European Honeybee colonies.

"Conservation will ultimately boil down to rewarding the private landowner who conserves the public interest."

– Aldo Leopold - Essay Conservation Economics, The River of the Mother of God.

FARM DAYS

For our first Farm Day, a group of enthusiastic volunteers from our sister organizations, Motive Power and 10/6, came to the farm, flying and driving in from multiple states, to participate in the border tree planting. These volunteers made it out to the farm despite record breaking temperatures and an ice storm. View our First Farm Day video here. Due to the weather and cancelled flights, many additional volunteers were not able to attend, and a second Farm Day was planned.

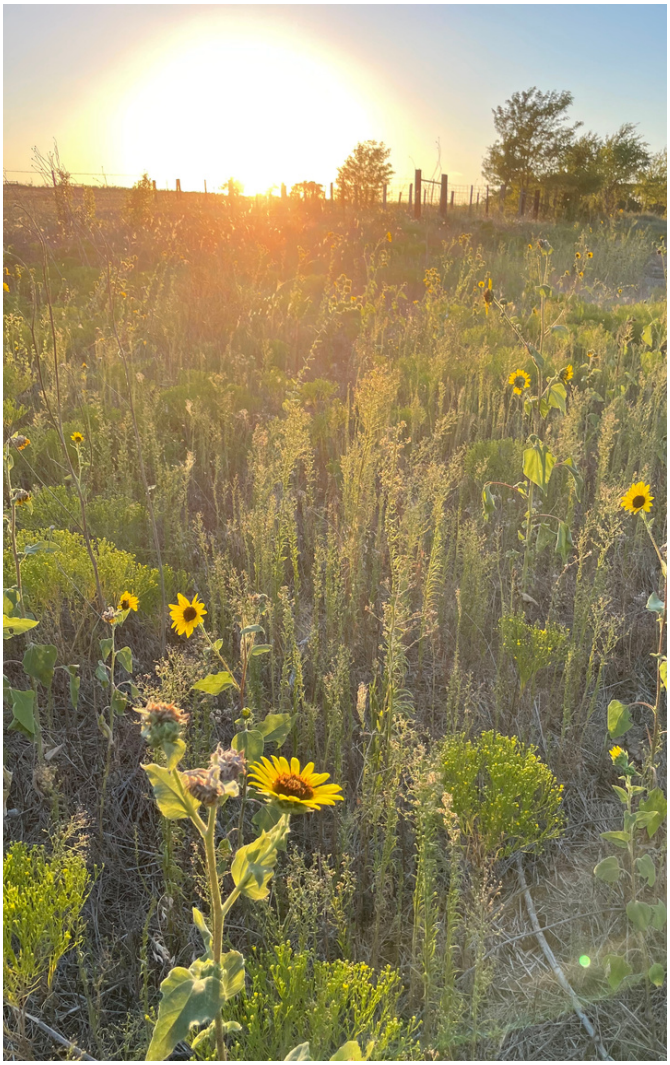
Our second Farm Day, in early April, was a resounding success with perfect weather and a lot accomplished. 27 people came to volunteer on the farm. In a single day they planted 160 orchard trees, assembled 4 beehives, installed 2 barn owl boxes, planted 132 carpet roses, and 100 lavender plants. Huzzah! You can view our video of this Farm Day here.

Our third Farm Day involved students from a California school group (more details below under Educational Programs). These students got their hands in the soil and made a tangible difference by planting native border trees. They then helped assure the survival of our 2022 border trees, by breaking out the pitchforks and distributing mulch onto dozens of trees planted this year. This mulch will help these trees retain water and survive even under drought conditions.

FUTURE

A proposal was obtained for pollinator and invertebrate monitoring, which is being considered for the 2023 growing season.

Educational Programs



Gulch education and outreach programs grew tremendously in 2022. We used the return of public events to grow our in-person outreach events with K-12 education. We also continued to offer corporate trainings and seminars.

SEMINARS

Gulch Foundation staff provided environmental training to over 70 people in corporations that guide utilities. Outreach to this group has a multiplicative impact, as it reaches people doing on-the-ground work in energy generation and with utilities. The overall training included Understanding Climate Change, and the Ecological Economy, all under the framework of Environmental and Social Governance (ESG).

CONFERENCES TALKS

Gulch staff engaged with their networks to provide talks and lead the conversation across many different disciplines.

Gulch staff provided sponsorship and keynote speaking, panel moderation for the Energy Thought Summer (ETS, largely a utility-based conference) and the Zpryme We3 Summit (Global Water and Energy, Gulch staff moderated a decarbonization panel and roundtable – The Next Level of Decarbonization), as well as other sponsorships related to energy and decarbonization.

The Gulch sponsored the No-till on the Plains 26th Annual Winter Conference. This conference gets producers practical information about implementing no-till, to promote that land management practice as a way to "greatly reduced soil erosion of cropland, less sedimentation of rivers, lakes, and streams along with improved wildlife habitat, all while sequestering atmospheric carbon dioxide in soil organic matter."

Again, leaning into the vision of making a place for everyone at the table when it comes to conservation, staff presented a talk on "Importance of Mutualistic Relationships Between Academia, Agencies, and Consultants" at The Western Section of the Wildlife Society.

In line with what leading climate communicators have been championing, we have been reaching out across disciplines, to engage in conversation and education with groups within our other spheres of influence that may not be traditionally focused on climate issues. Our Founder also gave talks at the Young Presidents Organization (YPO), rallying entrepreneurs to take action on what they can do about the climate crisis.

"The nation that destroys its soil, destroys itself."

- Franklin Delano Roosevelt

PUBLIC OUTREACH

The Gulch founder is currently working on a memoir, in collaboration with a major publisher, about her personal journey to climate action, with an intent to Entertain to Educate.

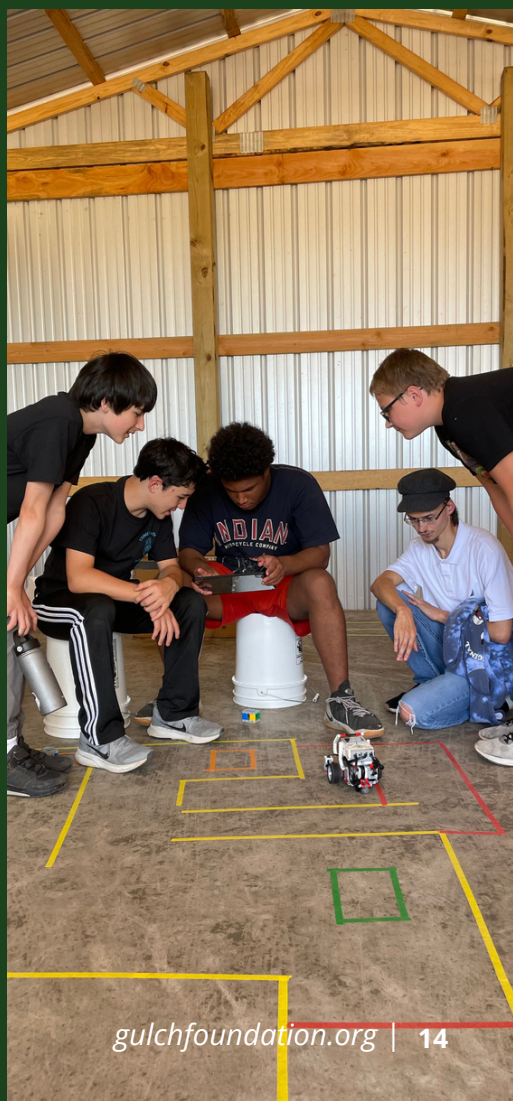
The heart of our public outreach is really to the next generation. As in-person events opened back up this year, we engaged with several K-12 groups to talk about science and climate. A large focus of our efforts this year was on breaking down barriers of communication.

Gulch staff participated in a Tomales High School Science Symposium Panel Speaker, providing guidance on science careers to high school students in their science program.

The Gulch team also participated in a podcast, Decarbonization from the Summit Floor to a Grid-Wide Reality.

ON FARM EVENTS

A traveling robotics team from California, the Sonoma Country Day School (SCDS) Comet B.O.T.S traveled all the way to rural Oklahoma to visit Rainmaker Farm. They made this epic trek to learn about many forms of the energy (sun, photosynthesis, wind, solar, fossil fuels), and how energy moves through living and non-living systems, in an area where you can see infrastructure for all those things. Farming is also a very robotic enterprise these days! A local Robotics team from Perry, Oklahoma joined the team from California, and they operated robots the California team had brought with them, sharing ideas and building community. This on-farm event was followed up by multiple meetings between the Comet B.O.T.S team and the Gulch Research Director, helping them to further understand how energy moves through systems on earth.



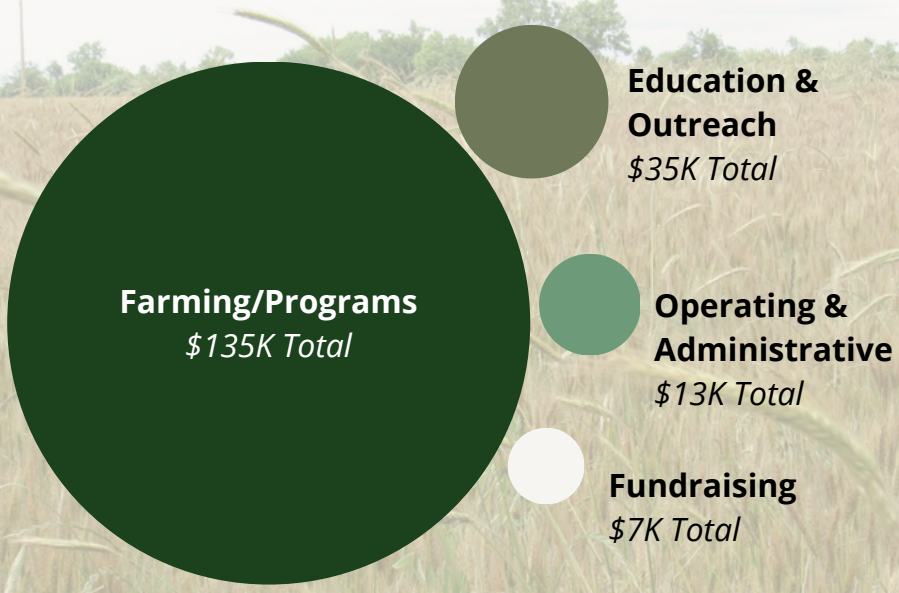
2022 Financials

2022 FUNDING *$383K Total*

Sponsorship Donations	*$382K*	99.8%
Contracts	*$0*	0%
Foundation/Corp Grants	*$0*	0%
Individual Donations	*Under $1K*	0.1%
Other Income: Sales & Investment	*Under $1K*	0.1%

**No public donations are used for overhead costs*

2022 SPENDING *$190K Total*



**All numbers are rounded to the nearest thousand.*

ASSETS & LIABILITIES

2022

Assets	Liabilities
$675K	*Under $1K*

Meet the Team

ANGEL LANCE *Founder*

Angel is a serial entrepreneur, having founded, owned and operated outright 5 separate entities, all of which have been successful financially, socially and with minimal environmental impact. She considers herself a good businesswoman that hasn't lost her sense of self, her sense of fun or her strict code of values.

To that end, a few years ago, like most people in their early 40's she did a lot of soul searching and cogitation around how to make an impact going forward, Angel was looking for her next pursuit. Her business was successful but just not as inspiring as it once was. Though much reflection she started thinking about the few things she knew she was good at:

- Growing things and helping make things naturally beautiful and bountiful
- Running a business
- Throwing parties and having zany fun
- Living life to the fullest with a mind's eye on the planet's health

Additionally, as a corporate executive, Angel has been the driver and responsible for giving hundreds of thousands of dollars to notable charitable causes. However, there is always a sense of frustration in that once the money had been distributed it was impossible to tell where it went or what good it actually did. As a result, Angel was determined to start a foundation that did what is said it was going to do and communicated openly about where money is going, and what impact it was having. Also putting her own money where her mouth is, she figured out that by signing up for all administration costs of the foundation personally, she could remove the tension of what foundation typically need to keep to themselves and be able to report accurately on impact related activities.

Thus the Gulch Foundation was born.

Angel Lance is a mother of two, a personal sustainable farmer, an aspiring farm to table chef and many other things. Her mission is to create a foundation that will help the environment and it's many long-time facing issues that need to be handled NOW for a habitable earth for our future generations.

DR. AVIVA ROSSI *Research Director*

Dr. Aviva Rossi is an ecologist with over 20 years of work experience in wildlife ecology, vegetation management, and habitat restoration. Her current work is focused on tracking changes to soil and wildlife biodiversity trends during regenerative agriculture transitions. At the Gulch she is grateful to be working towards a more stable climate future, thriving natural resources, and happy well-fed human beings.

MARTY WILLIAMS *Agriculture Director*

Marty Williams is a 7th generation Oklahoma farmer with a lifetime of experience in farming and ranching, including his own diverse no-till farming operation centered around conservation of our natural resources. He brings a broad range of agricultural expertise to The Gulch that is crucial for the success of our regenerative agriculture projects.

KELLAN HOSTETLER *Farm Manager*

Kellan Hostetler is the Farm Manager at Rainmaker Farm. He is a 5th generation farmer and rancher in on neighboring properties. He has a wide variety of skills and experience, and if he can't do something himself, he always knows someone who can. He combines that hands-on knowledge with a degree in Agribusiness from Oklahoma State University and has become an invaluable member of our team.

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THANK YOU

Thank you for your enthusiasm and support for the work that The Gulch Environmental Foundation is doing. We look forward to ongoing collaborations, friendships, and celebrations of our collective accomplishments.

DONATE NOW