



FIBERSHED
2019 Annual Report



Letter from the Executive Director

AS I WRITE THIS, there are 413 parts per million of carbon dioxide in every breath inhaled. The last time this same concentration of heat-trapping carbon dioxide was in our atmosphere, oceans were 20 meters higher than they are today. The full expression of the impacts of burning lithosphere-based carbon has not yet fully manifested. Yet, each year, we feel, see, and experience the life-threatening nature of the consequences compounding. The Intergovernmental Panel on Climate Change's (IPCC) most recent report (published in late 2018), declared the necessity for "rapid far-reaching and unprecedented changes in all aspects of society," grounded in the work to reduce global emissions by 50% by 2030 and to net-zero by 2050, all of which will give us a 50% chance of staying within a 1.5°C degree average global temperature increase.

While 1.5°C degrees may sound small—the consequences of the 1°C degree average rise in global temperature that we are currently enduring has caused a succession of events including a few notable cases just in the last 12 months—19 million acres of productive farmland in the United States went unplanted due to unprecedented late-season flooding, 15 million acres of Australia have burned in one unprecedented fire season with 480 million wildlife deaths estimated, and 4,000 firefighters were transported from multiple western states to keep just one of our state's hundreds of wildfires from taking out the highly inhabited and prized growing grounds of Western Sonoma County. In response to all of this (and so many other climate-induced crises), 7.6 million human beings walked into the streets in global protest within the last week of September, during the hottest year on record—2019.

The grassroots-driven protest response provides strong evidence that people are (on some level) conceptually ready to make the necessary changes for humans to attain balance with the carbon cycle. As was stated at our local climate strike—the strikes themselves do not remove carbon from our atmosphere, however, the mass mobilization of human beings all wanting to take society in the same direction at the same time, together, provides fertile ground for what comes next.

Within the IPCC recommendations, it is developed nations that are tasked with 15% reductions in emissions per-year. The biggest emitters with the highest consumption footprints have the deepest transformations to undertake. The question then becomes what levers do we need to pull to meet these targets? The first holistic emissions footprint model within one Bay Area city illuminated that direct emissions (building energy use, transportation, and land use) contributed 41%, while material use and waste (consumption and use of goods) contributed 43%. However, consumption of material goods is not typically included in industrialized countries footprints, whereas, direct emissions commonly are measured (residential & commercial energy use, transportation)—this leads to materially wealthy countries not taking full responsibility for their contribution to climate change and the countries that produce goods for consumption for wealthy nations bear the burden of having to tackle emissions within complex supply chains that are often designed to meet price point demands and not environmental standards.



In the field with Sonoma County land stewards Lora Kinkade (left) and Sarah Keiser (right) at a Fibershed field walk to share carbon farming techniques and build community around Climate Beneficial food and fiber production. (Photo by Paige Green)

The climate crisis is a grand opportunity to look at our material lives and relationships with the earth's biomes and diverse human communities through an equity lens. I love the old bumper sticker with the quote commonly attributed to Mahatma Gandhi advising that we “live simply so that others may simply live.” The question becomes, how can we live simply so that all beings can simply live? How can we extend the life of what we have, and how can we regionalize our economies and take full responsibility for our material culture? Fibershed continues to digest these questions and develop strategically deployed programs and projects to move the textile consumption dial in a more thoughtful and less impulsive direction. We worked extensively this year on demonstrating and beginning to fully operationalize regionally focused Climate Beneficial™ soil-to-soil material culture.

We focused upon regional economic development, state-level climate goal setting, public education, and direct financial and technical support for land stewards managing our working landscapes. Our work yielded some noteworthy goals being met—including laying the groundwork for a new social impact investment in late-stage milling that is on track to provide a 250-fold increase in locally grown, ranched, and milled Climate Beneficial textiles that can return to the compost pile after years of wear and care.

We collaborated with 14 land and resource management organizations to develop coordinated state-level policy recommendations focused upon achieving Carbon Neutral Agriculture in

California by 2030, and we worked with our producer community to implement 83 new Carbon Farming practices on 135,337 acres of land managed by Fibershed producer members that are active within our Climate Beneficial verification pipeline. Our national and international affiliated communities grew by eight new Fibersheds for a total of 44 active affiliates, and there are now six new local cloth and sourcebook projects being developed by these organizers.

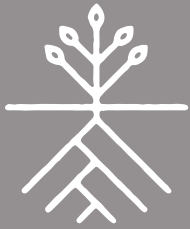
Many ground-building efforts were made in 2019, far too many to chronicle right here. However, the following pages hold the documentation of the hard work and accomplishments made by our growing and dedicated team and community of collaborators.

We are grateful to each of you for your contributions to this work. Without your dedication, care, and generosity, none of this work would be possible. We are looking forward to an incredible 2020 and to a new decade that brings serious and life-transforming work to our table. To help send us forward, I'll share the January 1st, 2020 words of Van Jones, “Humanity's most consequential decade is now upon us. Your permission to play small has been permanently revoked.”



Rebecca Burgess

The climate crisis is a grand opportunity to look at our material lives and relationships with the earth's biomes and diverse human communities through an equity lens. I love the old bumper sticker with the quote commonly attributed to Mahatma Gandhi advising that we “live simply so that others may simply live.” The question becomes, how can we live simply so that all beings can simply live? How can we extend the life of what we have, and how can we regionalize our economies and take full responsibility for our material culture?

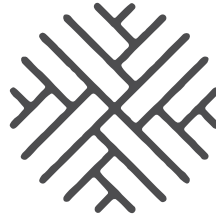


Regional Textile Economies Program

FIBERSHED'S REGIONAL TEXTILE ECONOMIES PROGRAM works to build regional supply chains, connecting growers, manufacturers, and wearers. In this program, we focus on three strategies: building and promoting a strong, connected producer network, assessing and developing regional manufacturing capacity, and supporting the movement of materials along the supply chain from producers through fiber processors, designers, and brands to wearers and textile users.

COMPLETED:

- 13 new farms, 10 new artisan members, and 3 supply chain partners added to the Northern California Producer Program
- Community Agricultural Director hired and on-boarded
- Developed the 2019 Producer Snapshot which provided an informal needs assessment based on-site visits and producer interviews to inform program design and outreach
- 16 professionally photographed stories on local farmers, mills, and artisans
- Drafted, printed, and distributed the second and third editions of the in-print Producer Newsletter to producer members
- Fully updated all member profiles on the online Producer Directory, which received 18,411 page views
- Organized two producer meet-ups (January and August) with approximately 35 farmer and artisan members in attendance at each
- 4 employees and contractors trained in Salesforce functionality and management
- Refined the database to efficiently track program participation, carbon farm practice implementation, membership renewals, outreach, and advocacy



Producer Network

BY MOLLY OSHUN

TO PROVIDE DEDICATED SUPPORT to the member producer community, Fibershed hired Molly Oshun as our first Community Agricultural Director in August. With a background in watershed hydrology, community organizing, and nonprofit program design, Molly initiated a process of inward accounting and evaluation to refine program goals and strategies for the producer program. The Producer Snapshot, a 45-slide report presented internally in November, gathered themes from 16 site visits and interviews with land-based producers. Among the themes documented are the tremendous ecological knowledge held by Fibershed producer members and the ongoing challenges of selling wool and achieving economic viability. Producers reflected gratitude for the sense of community among fiber farmers that Fibershed facilitates and our impact in shaping demand for Climate Beneficial™ products. The snapshot is being used by staff to inform the 2020 work planning.

To continue nurturing informal connections between producer members, Fibershed held two producer meet-ups in 2020. The first, in Oakland in

January, brought together 35 producer members and a handful of potential producer members from the Bay Area's arts and design community. Inspired by a suggestion from producer member Jackie Post of Sheep to Shop in Vacaville, attendees participated in the form of speed dating designed to encourage new collaborations between fiber farmers and designers. The August meet-up at Bodega Pastures in Sonoma County featured the results of a Healthy Soils Program grant, executed in partnership with Goldridge Resource Conservation District and the Carbon Cycle Institute. Together, participants toured the property, sharing tips for compost application, and managing predators that find cover in new hedgerows.

Fibershed published two print Producer Newsletters in 2019, with overwhelmingly enthusiastic feedback from producers. We continually hear from producers who are challenged to keep up with email but appreciate the tactile experience of learning from other members. The 2019 newsletters printed stories on how to market yarn to knitters, updates from our regional mills, reviews of the Business Curriculum, and news from Fibershed Affiliates. These newsletters, the bimonthly email updates sent to producers, and the 16 blog posts featuring producer members all effectively grow visibility across our fibershed, nurturing connections to neighbors. The power of this community was keenly felt during the Kincade Fire in Sonoma County when several producer members were forced to evacuate with their animals on short notice. They took shelter at the homes of fellow Fibershed members, working together to weather the substantial challenges of livestock care under PG&E blackouts.



*"I love what Fibershed is doing.
These are my people: ecologists
and fiber artists."*

– RHOBY COOK, FIBERSHED
PRODUCER MEMBER



Clockwise from above, Stephany Wilkes gives an update on the Northern California Fibershed Cooperative at the Producer Meet-Up in January at Humanist Hall in Oakland. (Photo by Jess Daniels); Producers at the January Producer Meet-Up at Humanist Hall in Oakland participate in a speed dating exercise to match artisans with fiber producers. (Photo by Marie Hoff); Jason Hoorn, Goldridge Resource Conservation District Project Manager, shares details from the Healthy Soils grant-funded compost application at Bodega Pastures at the August 2019 Producer Meet-Up in west Sonoma County. (Photo by Paige Green)



Fibershed can continue to help by:

- Facilitating a mid-micron count Wool Pool
- Brokering peer to peer learning and regional networks
- Leveraging funding sources and brokering deals outside the supply chain
 - Healthy Soils Program
 - Dedicated grant writing program?
- Exploring possibilities for collaboration among contract grazers
- Valuing savvy communications and policy work
- Evolving the cohort model to capture 'low hanging fruit' CFPs



Left, a summary slide of core strategies to support the needs and goals of Fibershed Producers from the 2019 Producer Snapshot; right, Molly Oshun, Fibershed's CAD, presents a handful of inspiring stories from the producer community during the Producer Snapshot to the Fibershed team in November.

Right, Bev Fleming holds roving from her 'spinner's flock' of Merino, Cotswold, Bluefaced Leicester (BFL), and Romney; featured on the Fibershed blog in November. (Photo by Paige Green)

Below, an excerpt from the February Producer Newsletter, a 20-page printed newspaper distributed via mail to all producer members.



Growing Involvement in the California Healthy Soils Program

While applications for the current round of California's Healthy Soils Program (HSP) grants are due March 8, Fibershed will continue to be actively engaged with advocating for improvements and increased funding at the state level for this important program. In 2018, HSP was allocated \$15 million in statewide funding to support new implementation of on-farm practices that sequester carbon, reduce greenhouse gas emissions and build healthy soils. This year's grant program offers more options of incentivized practices relevant to our Fibershed producers (including hedgerows, riparian restoration, compost application, range planting, prescribed grazing, silvopasture, and many others) as well as higher reimbursement rates than the previous round of grants.

We're excited that many Fibershed producers are currently preparing applications to receive support for expanding carbon farming practices in their operations, with more help available this year from Resource Conservation Districts and other technical service providers. Over the coming months, we look forward to sharing stories and learnings from these projects in our community. We encourage producers to reach out to Heather Podol (heather@fibershed.com) to share your thoughts, successes, and challenges with the HSP program, as we collectively work toward greater support and more opportunities to expand carbon farming in our region.



In 2018 Meridian Farm installed a hedgerow and applied compost to a section of their pasture with funding support from the Healthy Soils Program. Here Peter Lofting demonstrates the method he developed to apply compost at a precise rate to small acreages. (photo by Meridian Farm)

Business Curriculum

Late winter and early spring will welcome the continuation of our business training with Olivia Tincani and Anjali Oberoi of Olivia Tincani & Co. Feedback so far from producers that have participated has been glowing and we encourage you to take advantage of this incredible opportunity for free coaching and training in all those business and financial skills you wish you had learned in the past.

Upcoming classes round out marketing and financial topics. In the February 21st marketing course, you will learn to ground your marketing efforts in foundational thinking and the importance of crafting a marketing plan. We will introduce techniques that are relevant to all business types at every stage of development. Our approach is based on thoughtful strategic planning so that the money spent on promotion is always reflective of your overall core values and business identity. Trainings include templates that can assist in the solo crafting of a marketing plan that acts as a road map for your brand development and future marketing initiatives.

In our March 18 & 19 Sales Strategy course, we will cover both the quantitative and qualitative elements of choosing and maintaining a mixed sales channel strategy for your business with revenue coming from various types of customers (retail, wholesale, direct consumer, etc.). We will discuss how to target varied customer groups through different channels, and what diversification means in terms of pricing, margin, and calculating overall potential profit. On the qualitative side, we will teach a holistic approach to evaluate what channels to sell your product through, and why multiple sales channels often offer more stability. Our sales philosophy emphasizes collaboration versus competition and takes the four out of seemingly scary channels such as wholesale. We will review the pros and cons for the direct to the consumer market and appropriate marketing tactics. We will address specifics for both fiber fiber arts and meat sales in smaller breakout groups. On the quantitative side, we will evaluate sales channels via the lens of pricing strategy and resulting margins that ultimately contribute to your business bottom line. Margin calculations will consider production and post-production costs unique to the channel, including production labor costs. We use a proprietary tool developed to help distinguish across sales channel differences and their margins, that will help serve your business through change, growth, and expansion stages.

"Managing Cash with Grace" on March 24 & 26 will walk through the necessities and complexities of managing your professional and personal cash flow, with the ever-desired goal of minimizing cash fluctuations and crunches. We will discuss forecasting business growth and related working capital needs through the creation of realistic, usable budgets. We teach how to recognize the need for financing, and we will review various modes of funding including the best time to approach them, relevancy to the business cycle, and tradeoffs across modes. Financing your business often involves taking on personal risk, and our goal includes exploring this risk to ensure making the best use of business and personal assets, evaluating the opportunity costs of decision making, and managing your income and returns at a holistic level.



The original Fibershed Knitalong shawl, designed by Emily Cusnetto (Photo by Paige Green)

Fibershed Knitalong 2019—Coming Soon!

In 2016, we hosted the first Fibershed Knitalong featuring a beautiful shawl pattern designed by Emily Cusnetto. Inspired by multiple requests from our fiber producer members, this year we will organize a second Fibershed Knitalong to promote awareness and interest among the wider knitting community in using locally produced and processed yarns. This year's knitalong will again highlight a unique hand knitting pattern that can be worked in a wide range of local yarns. The knitalong will include digital community-building through social media and blogs, inspiring community participation and encouraging direct support of small-batch yarn makers including Fibershed member farmers, natural dyers, and retailers. The 2019 Knitalong will launch in the second half of the year; yarn producers will have the opportunity to create samples and kits to support yarn purchases at the Fibershed producer marketplace at the fall fashion gala and Symposium. We would like to open the pattern submission/design process to designers throughout our community. If you are a pattern designer interested in participating or if you would like to recommend a designer you admire who is based within our strategic geography of the Northern California Fibershed (from San Luis Obispo to the Oregon border), please reach out to office@fibershed.com.

A Message from Fibershed's Community Agricultural Director

GREETINGS from the newest member of the Fibershed team. As a Sonoma County native and water resource engineer, I am delighted to join the community of partners working to preserve and regenerate vital working lands in my home region. My background is in climate adaptation planning, collaborative process, and community organizing for the restoration of primarily urban watersheds. I thrive in the role of matchmaker — linking visionaries to strategists, grassroots leaders to capital, and land tenders to technical experts — and fortunately, matchmaking comprises a significant portion of my role as Community Agricultural Director (CAD). With support from Fibershed's tremendous brain trust of employees, contractors, and partners, I spent the fall of 2019 conducting an informal needs assessment (Producer Snapshot) and revising the first steps of the Climate Beneficial™ verification pipeline (Entrance Survey & Soil Benchmarking). In 2020, I will spearhead a process to refine the second steps of the Climate Beneficial verification pipeline (Carbon Farm Planning and Annual Practice Implementation).

Additionally, I hope to lead outreach to strategic geographies within the fibershed to continue growing membership and strengthening community cohesion. As a volunteer wildland firefighter for prescribed burns, I have a particular interest in the intersection between prescribed fire, prescribed grazing, and watershed hydrology on private lands.

— MOLLY OSHUN

The Northern California Fibershed Cooperative

By STEPHANY WILKES

IN 2018, Fibershed 501c3 won a United States Department of Agriculture grant to support a yearlong process with our producer members and staff under the guidance of a talented and well-respected Bay Area Cooperative lawyer, Jenny Kassan. We worked with Kassan to develop an Agricultural Cooperative (norcalfibershedcoop.com) that is a profit-sharing subsidiary of the 501c3 that provides producers and artisans in our region the ability to collaborate to advance the following mission:

The mission of The Northern California Fibershed Cooperative (Coop) is to provide stability and lasting prosperity for independent producers who own and operate farms and ranches; and for those who create goods from locally grown materials within our Northern California Fibershed through the Fibershed Marketplace (fibershedmarketplace.com), cooperative marketing, value-added production, and education. The Coop will promote the use and production of regionally grown materials, and support our community to enhance and restore our soil, water, and the health of the biosphere.

In 2019, the Coop achieved its goal of experimenting with pop-up shop events as a real-world sales counterpart to the online FibershedMarketplace.com, which launched in 2018. Eighteen new merchants participated in either online or pop-up sales events (usually both), and volunteer participation grew.

The top five sales categories across pop-up shop events were, in order of gross sales and without controlling for price point:

- Yarn
- Pillows
- Blankets & Throws
- Housewares
- Scarves & Cowsls



The Coop gained 26 new members in 2019, for a total of 55 voting (non-investor) members who represent new counties of its Northern California geography. An uptick in membership in Q4 2019 indicates a possible correlation between perceived value in pop-up shop participation and membership growth: Half of the Coop's new members joined between October and December and after the announcement of a Coop Lambtown booth.

The Coop also welcomed a new Membership Secretary, Jennifer Ondrejka, who volunteered to serve out the remainder of the initial term of founding Membership Secretary Carol Frechette.

2019 POP-UP SHOP GOALS AND MODEL

The Coop wanted to experiment with pop-up shop opportunities because the cost of participation for an individual business can be cost-prohibitive. Also, the time and cost of booth design, inventory management, transportation, set-up, and breakdown are substantial.

For this first 2019 series of pop-up events, the Coop sought to increase participation, and minimize costs and risk, to its members. To that end, the Coop paid all event costs upfront, which events require from all vendors. Coop members did not have to pay any participation or booth fees to offer goods for sale at pop-up events. The Coop hoped to recover, through its 25% commission, all event costs, and sales



(Photos by Paige Green)

platform fees. In this model, members do not pay if they do not sell any items; the only members who pay are those who sell items.

As for the online Fibershed Marketplace, the Coop collected sales tax at all pop-up events, which it pays to the State of California annually, another service for members.

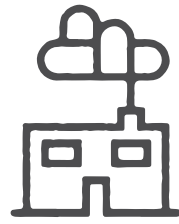
In September, Fibershed co-organized an immersive evening at Greens Restaurant in San Francisco to celebrate the launch of the Cozy Home Collection by the Northern California Fibershed Coop. Through a curatorial and design collaboration with Beth Miles, Coop members had the opportunity to refine products ranging from pillows and throw blankets to tablewares, both functional and decorative. Coop President Stephany Wilkes, producer and co-op member Robin Lynde, Fibershed Executive Director Rebecca Burgess, and designer Beth Miles each spoke to provide context to the work. At the same time, guests enjoyed delicious, locally-sourced fare from the Greens kitchen. Goods from the pop-up launch were carried through to market opportunities in-person and online throughout the fall and winter seasons, including a series of pop-ups at the San Francisco Ferry Building Farmer's Market.

The Northern California Fibershed Cooperative launched the Cozy Home Collection at a series of pop-up marketplaces throughout the Bay Area, supporting member businesses with a curated selection of bioregional products. (Photos by Paige Green)



COMPLETED:

- Designed and launched the Regional Fiber Manufacturing Initiative (RFMI) whose objective is to incubate (identify, prioritize, strengthen and grow) natural fiber and dye businesses across 3 West Coast Fibershed Affiliate groups
- Designed and produced a Manufacturing Infrastructure Map for public and brand education that highlights each stage of processing within the wool, cotton, flax, and hemp supply chains from raw fiber to fabric and identifies current and needed infrastructure in our region.
- Developed a financial model for Huston Textile Company that yielded a new and much needed economic partnership that is modernizing failing equipment
- Coordinated and facilitated 3 Regional Manufacturing Advisory Board listening sessions for 6 legacy fiber processing and milling infrastructure projects and businesses in North Central California
- Completed a Market Research Report “Understanding Sustainable Textile Investment Opportunities” (bit.ly/Sustainable_Textiles_Report)
- Coordinated and facilitated three Huston Textile Advisory meetings to assist textile design and development processes. The board increased in size from 8 to 11 members in late 2019, to include its first investor members
- Recruited 5 mid-scale clothing and textile brands to generate letters of intent to purchase our region’s textiles. These letters are part of the necessary recipe to support the justification for rebuilding aging textile infrastructure as well as training a skilled “livelihood force” of next-generation mill operators.



Manufacturing Assessment and Development

OUR 2019 CONTRIBUTIONS to regionalizing Our textile culture focused upon developing and disseminating financial models, engineering schematics, coordinating stakeholders, and incorporating advice from European natural fiber milling consultants into all of our deliverables. Our work yielded the kinds of economic collaborations we’d hoped and dreamed for this year—California’s first mechanized weaving mill has a new social impact-focused partnership that is financing the modernization of critical pieces of equipment and helping the business to restructure. This year, we continued to grow our understanding of our manufacturing and milling community through a series of listening sessions. These sessions galvanized a new organizing body that launched this year—The Regional Manufacturing Initiative (more on that follows).

Contextualizing & Reflecting

BY REBECCA BURGESS

SINCE 2013, Fibershed has been working towards a “north star” goal of producing a material culture that sinks more carbon into our soils than it emits into the atmosphere while providing diverse and appropriate livelihoods within our community. We understand that transferring the legacy load of CO₂e from our atmosphere and into our soils is the urgent responsibility of our generation. Moving atmospheric carbon into our

soil at quantifiable rates is essential to solving the climate crises. For drawdown benefits to make a significant impact on our global emissions budget, regional manufacturing and value-addition processing must walk hand in hand with soil carbon building efforts. We have to thoughtfully design how and where fiber that is grown on carbon-sinking landscapes is processed.

Approximately 43% (the most significant share) of emissions in the city of Oakland, California, are generated by consumption (textiles, electronics, durable goods)—this is a far larger footprint than the emissions produced from commercial and residential buildings, transportation, or land-use emissions. Oakland was the first city in the country to analyze consumption footprints, and we see this as a growing and very needed trend for cities and suburbs across the country. The goods that we consume have higher carbon footprints than the direct emissions we are generating in our towns and cities. Therefore, consuming countries and the urban and suburban communities they host have a significant task ahead in addressing the climate crisis by addressing the rate of consumption and consumption choices as a whole.

In 2013, during our collaboration with UC Berkeley’s Silver Lab, Fibershed mathematically demonstrated the need to pair soil carbon building with regional-manufacturing to achieve “net negative emissions” on a wool garment. We quickly discovered that carbon sinking in our fiber producing landscapes must be paired with short distance supply chains that operate off of renewable energy. We even analyzed commute times for people working at the mills. We discovered the essential need for workforce housing that keeps people within walk-able or bike-able distances of their livelihoods. Every facet of regionalizing the supply chain made a considerable difference on the footprint of the garment. The picture that formulates from all of this data gathering and number crunching will be

“The Regional Manufacturing Initiative is a structure that we have been seeing the need for but didn’t know how to articulate it. It’s been very hard for communities to define their value-addition and manufacturing needs through financial modeling and engineering schematics. The expertise of the RFMI is so needed.”

– ANGELA WARTES-KAHL,
CO-FOUNDER OF FIBREVOLUTION
BAST FIBRE PARTNERS

of little surprise to most of you reading this. The fact is that local economies that generate basic human needs for their population and are based on an ethic of land stewardship are key to solving the climate crisis. We are far from the first organization to spell this out. We stand on the shoulders of community organizers and local economy visionary giants around the globe. We share in the knowledge that creating local textile cultures is the responsible direction—and yet, the work to establish these systems within the context of neoliberal trade policies and lowest common denominator capitalism has made our effort to reclaim our textile sovereignty an uphill economic and cultural proposition. Efforts to regionalize our textile material culture must be based on finely crafted business models that are operationalized by a trained and diligent workforce.

Regional Manufacturing Advisory Board

BY REBECCA BURGESS

THE REGIONAL Manufacturing Advisory Board was organized in 2019 and is composed of six legacy businesses and one start-up linen cloth project in North Central California. These stakeholders include Chico Flax Project (chicoflax.com), The Valley Oak Wool Mill (valleyoakwoolmill.com), AVL Looms (avllooms.com), Huston Textile Company (hustontextile.com), Woolgatherer Carding Mill (thewoolgatherer.com), Mendocino Wool and Fiber (mendowool.com). Half of the members are ‘next generation’ textile workers who are under 40 years of age and who have launched their businesses within the last five years.

These enterprising mill owners and project leaders have a range of backgrounds, including the armed services, four-year colleges, hand weaving, and on-the-ground experience as fiber workers. With no formal vocational training for textile manufacturers in California and limited educational offerings domestically—our milling leaders are learning the trade from trial and error, and some have partnered with retired mill engineers who remember how to run the used equipment that they now own.

By conducting a needs assessment in 2019, we documented that four of the business owners that currently own used equipment have plans for modernizing their systems to overcome the issues that are arising with aging machines. They all identified a need for more training (for themselves) and identified a need to create a pipeline of trained textile workers that they can rely upon as they seek to grow. Marcail McWilliams from Valley Oak Wool stated, “There is just too much downtime while replacement

parts are sourced or fabricated, every day of downtime is another day I’m not making my rent, very few people know how to fix these machines that I’m working on.” The listening sessions revealed a deeper level of financial challenge among all manufacturers due to aging machinery than nonprofit staff had anticipated. However, we were surprised to hear that all of the fiber processors are experiencing financial hardship due to old machinery. As Sarah Gilbert from Mendocino Wool and Fiber stated: “We haven’t been able to find anyone who used to work on our spinning frame—there is actually no one to ask when something breaks, we are flying blindly.” They also identified gaps in regional processing—large-scale wool and alpaca washing systems, hemp degumming, textile recycling systems, and natural dyeing were all noted as “technical white space” that needs to be filled.

The board met as a group for the first time in the summer of 2019 and this meeting was followed by one-on-one calls between business owners and Fibershed staff and site visits by Scottish trained milling and processing consultants, North Outlook. After these listening sessions took place, Fibershed staff and consultants evaluated the outcomes of our interviews and over the course of the year we designed an organizational structure that aims to serve the needs we identified. The Regional Fiber Manufacturing Initiative as we’ve titled it (described in more depth on the following page), is designed to both serve legacy businesses in our intimate region of North Central California, as well as take a wider “western region perspective” so we may thoughtfully address the early stage milling infrastructure that does not currently exist, including wool washing, natural dyeing, textile recycling, composting, and degumming bast fibers.

The Regional Fiber Manufacturing Initiative: Inoculating the flow of capital into the regional fiber supply chain

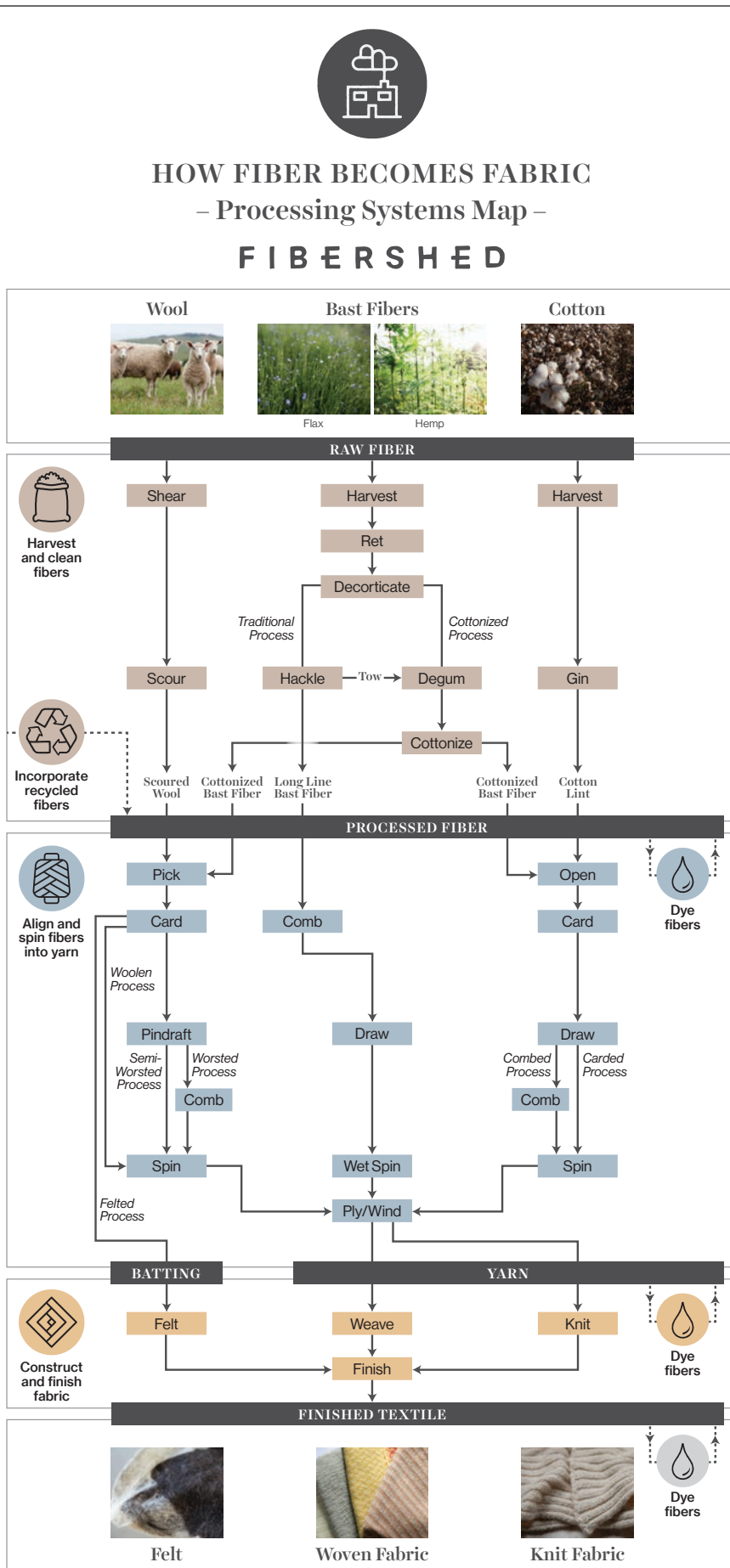
BY HYPHAE PARTNERS:
ADRIAN RODRIGUES AND
FRANCOIS-JEROME SELOSSE

Hyphae Partners works with businesses to develop, implement and finance regenerative business models

DURING 2019 we balanced our time between envisioning what a holistic regional fiber manufacturing supply chain could look like and evaluating real-time investment opportunities. We feel this balance furthered our overall goal of helping fund and build the missing links in the region's fiber supply chain in a manner that supports Climate Beneficial ranching and farming community, and that creates resilient livelihoods for those operating existing and emergent infrastructure assets.

To inform the vision of a regional fiber manufacturing supply chain, we focused on two key projects. The first effort yielded a Manufacturing Infrastructure Map that highlights each stage of processing within the wool, cotton, flax, and hemp supply chains from raw fiber to fabric. The map houses information about where supply chain infrastructure currently exists and what open gaps need to be filled by existing or emerging operators. It serves as a foundation for our efforts to map and prioritize opportunities for infrastructure development in 2020. A version of the graphic (at right)

This year we analyzed the current and needed manufacturing infrastructure in our region and developed a graphical framework to guide our efforts to realize a complete regional textile system. The graphic at right was developed to illuminate the manufacturing component of the soil-to-soil cycle for public, brand, and investor audiences, and can be found online: fibershed.com/programs/textile-economy/. (Photos by Paige Green; hemp photo by Donnie Hedden)



Learn more at fibershed.org

has also been prepared for public and brand education. The second project focused on establishing a committee of individuals with fiber processing, fiber growing, finance, consumer demand, and engineering acumen—The Regional Fiber Manufacturing Initiative (RFMI) as it is now known, is a structure that serves a multi-stakeholder partnership that coordinates and deploys strategies to build regional fiber manufacturing infrastructure. In 2019, we developed the initiative’s mission, vision, and supporting documents, and we’ve recruited members (13 thus far) to address the following goals in 2020 and beyond:

- Develop the roadmap for solutions (through mapping, consultations and financial modeling) that will lay the foundation for regional infrastructure to be built and grown in a manner that supports regional producers and brands
- Connect conscious capital to stabilize and grow legacy supply chain partners
- Identify and cultivate new supply chain entrepreneurs and develop vocational training
- Continue to educate and attract new mission-aligned investors that are interested in supporting a regional fiber manufacturing ecosystem

During the latter part of 2019, we worked with Fibershed staff to develop a new financial model for the Huston Textile Company as it pursues its next chapter in modernizing late-stage milling (weaving and knitting). This partnership involved determining the appropriate machinery choices, informing a future optimal scale, as well as modeling different financing and pricing scenarios (the financial model is available upon request). Fibershed secured five letters of intent from brands—examples include well-loved pioneers in domestically produced natural fiber textiles such as Mara Hoffman and Elizabeth Suzann. The efforts of this research and planning

effort attracted a new mission-aligned investment partner who is focused on economic justice and rebuilding American manufacturing textile hubs. We are optimistic that this partnership between the Huston Textile Company and their new investors will be the beginning of a shift toward domestic investments in this sector.

Textile Investment Opportunities Report

BY SARAH KELLEY

Sarah Kelley is the co-founder of the Southeastern New England Fibershed, and Fiber Systems coordinator for the Sustainable Agriculture & Food Systems Funders

AT THE SUSTAINABLE Agriculture and Food Systems Funders In-Depth Session on Fiber and Textiles in June 2018, a working group of funders confirmed the need for better market research data to help make a case for investment in regenerative textiles and apparel nationally and globally. Funders described the difficulty of investing in this sector—their experience was that lack of reliable data on the market size and potential growth and investment history created a barrier to impact investing and industry partnerships.

The group identified a need for an initial market research project that would provide the kind of data that could encourage investment in Fibershed regions around the country. In summation, the fledgling sustainable textile possibilities are not nearly understood well enough by market makers to turn textiles into the economic and environmental asset that the world demands. The Textile Investment Opportunities Report (first draft) (bit.ly/Sustainable_Textiles_Report) was completed in November of 2019 to serve the need for more reliable market data for program-related, philanthropic, and

Photos on the following page, clockwise from top left:

Valley Oak Wool Mill is owned and operated by Marcail McWilliams, a ‘next generation’ miller who has been experimenting with a range of the region’s coarse wool and has built a significant following and support from the region’s farming community. McWilliams would like to invest in new carding and spinning equipment and offer agri-tourism opportunities at a new location that integrates farming and milling on a single site. (Photo by Paige Green)

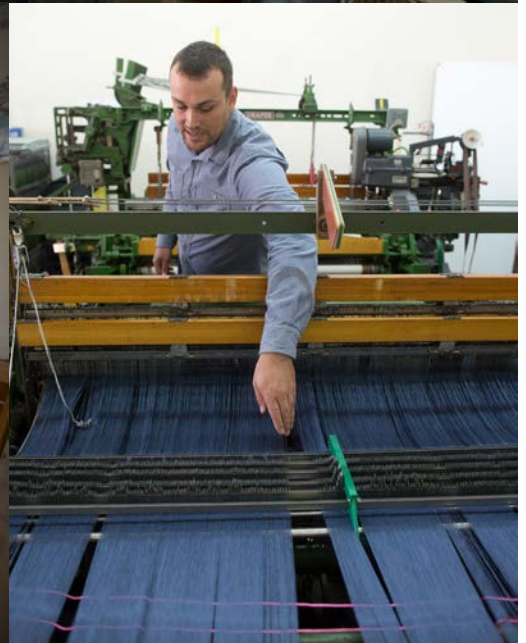
Huston Textile Company, owned by ‘next generation’ mechanic, Ryan Huston, utilizes Draper and Compton and Knowles equipment from the mid-twentieth century. The new social impact investment will help to keep the mill open and support the modernization of strategic pieces of equipment. (Photo by Paige Green)

Woolgatherer Carding Mill in Montague CA is located near Mt. Shasta in Siskiyou County; the mill processes washed wool fiber for organic and biodegradable bedding. The mill would like to see a large scale local wool washing line to help it prepare fibers for its picking and carding machines.

Sarah Gilbert runs Mendocino Wool and Fine Fiber Inc. with husband and shearer Matt Gilbert in a facility next to their young family’s home. The Gilberts would like to invest in new spinning equipment and to significantly expand the scale of their operation to achieve their vision for clothing their community in local fibers. (Photo by Nicholas Wenner)

AVL Loom being used by Sandy Fisher of the Chico Flax project. The AVL loom company has been constructing looms, including fabricating all the parts necessary for their system from their base in Chico, CA, for over two decades. The mill is working to advance their business in the coming years to offer more opportunities for their looms to be used in manufacturing settings. (Photo by Paige Green)

social impact investor audiences. The final draft of the text will be available by the end of the first quarter of 2020. It will be disseminated thoroughly to the Sustainable Agriculture and Food Systems Funders as well as the Fibershed network of funder partners. The document will be utilized in an on-going manner as an entry-level educational document to recruit more investors and stakeholders into this sector.



COMPLETED:

- Developed and offered 14 Fibershed business courses to the Fibershed Producer Program membership
- Provided 8 one-on-one technical assistance and coaching sessions with Fibershed producer members
- Launched and facilitated the 2019 Fibershed Knitalong to encourage and inspire 100% local knitting projects
- Supported three knitting pattern designers in the production of three hand knitting patterns (mitts, cowl, and cardigan) uniquely crafted to support a wide range of regional yarns
- Created resources to support farm yarn sales including a producer dossier, marketing materials, and one on one guidance on kit development
- Hosted Knitalong display tables at the Gala and Symposium including knitting pattern samples, a tactile swatch wall, and participant cards to document knitting projects on local paper

“Thanks again for all the support and assistance. I also love the business curriculum and webinars you guys have assembled.”

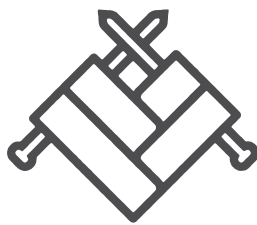
– JIM JENSEN, JENSEN RANCH

Jim contributes wool to Fibershed’s Climate Beneficial Program

“I have found the business curriculum offered by Fibershed to be superior in quality and it exceeds, by far, learning opportunities offered through other organizations. I do not have a background in business and don’t know what I don’t know. The most valuable session that I routinely rewatch is the one on accounting and taxes. I have grown and diversified, and now know more about the questions I need to ask my CPA.

I think the business curriculum is of great value because it is not generic. It is designed and delivered within the lens of the Fibershed values. This aligns with my values and desire to grow as a better steward of the earth and work with local producers in the community.”

– CHARLENE SCHMID, INTEGRITY ALPACAS & FIBER



Supply Chain Support

Business Curriculum

BY OLIVIA TINCANI

OVER THE LAST TWO YEARS, we have completed multiple-session business training to build general acumen in the Producer Program members. The series includes webinars and in-person experiential learning events based on an extensive needs assessment phase. The needs assessment was conducted in the second half of 2017 through early 2018, identifying patterns of need across the membership collective and common producer business pain points as identified by Fibershed stakeholders. The series of training offerings were designed to empower Fibershed Producers with basic business, strategic planning, marketing, and financial skills applicable to fiber economy businesses at any stage in development or tenure. Courses were served “a la carte,” delivered primarily online through live webinars, with recordings and materials

available after the fact via a producer-only webpage (fibershed.com/business-curriculum), and included a suite of practical template-based tools to apply to each specific business.

Our 2018-early 2019 courses covered necessary skills, and our March-Dec 2019 courses, 17 in total, represented more of a deep dive into specific discrete topics. The following courses were conducted in 2019, all of which were webinars unless noted:

- Sales Strategy: Margins, Pricing, and Channels
- Holistic Business Breakeven & Enterprise Budgeting
- Managing Cash with Grace
- Inventory Management
- Values-Driven Leadership & Management Skills (in-person half-day seminar)
- Customer Service (in-person half-day seminar)
- Agritourism: Operations/Best Practices & Legal Considerations (2 separate webinars)
- A Framework for Understanding Business Structures for Fiber Businesses
- Understanding Taxes and Managing for Income Tax
- Employment Law Basics for Farm & Fiber Businesses
- Compassionate Communication: 3 part series in non-violent communication methods
- Insurance & Liability Law Basics for Fiber Businesses
- Sales Law Fundamentals and Agreements for Fiber and Farm Businesses
- Direct Marketing Meat

"I expected that the Introduction to Strategic Planning class I attended in Petaluma would teach me some new skills and help ground my new business. What I gained was so much more than that. The core values exercise was transformative not only for my business but for my life in general. Olivia helped me refine my values in such a helpful way that now they are my go-to arbiters of almost every decision and choice I make in general.

The other business curriculum webinars I've attended have built on that sound foundation. Having run two businesses for over 25 years, I was amazed at how many more helpful skills and tools I can use that the curriculum offers. Olivia's one on one support has meant the world to me...she is a talented communicator and has such deep knowledge and love of her craft. I encourage everyone at whatever stage your business is at to check out this resource."

– HELEN KRAYENHOFF, KASSENHOFF GROWERS



The Fibershed Business Curriculum offered online and face to face classes including Values-Driven Leadership and Management Skills and Customer Service seminars held in Petaluma (Photo by Jess Daniels)

Individual surveys were administered directly after each course, and responses will be aggregated and analyzed in early 2020 to inform future programming and the dissemination of this content within our Affiliate network. We will also deliver a complete evaluation survey in early 2020 both in person at the February producer gathering as well as online with incentives to participate in garnering as much response as possible.

Also, producers were supported via one-on-one coaching for their individual business and financial operation issues. We successfully worked with eight individual producer businesses in this technical assistance role with engagements of 2-8 hours each. Two of those relationships have spun off into separate dedicated consulting relationships with educators Olivia Tincani and Anjali Oberoi, building on Fibershed's initial free offering into longer-term engagements, a sign of the TA program's success.

Fibershed Knitalong 2019

BY JESS DANIELS

The 2019 Fibershed Knitalong was a holistic undertaking to better resource regional yarn producers and drive knitter engagement with local fibers. With more milling opportunities on the local landscape, the knitting community provides a perfect match to support farm to yarn businesses.

A "Knitalong" sheds light on the abundance of local yarn and the talent of local knitting pattern designers, and in 2019 this project sparked support for both: yarn was the most frequently purchased item in the Wool Symposium marketplace according to our attendee survey. Both the Symposium and the Gala featured display tables with sample items knit from the Knitalong patterns alongside a "swatch wall" that offered tactile inspiration for knitters to choose their adventure on a 2019 Knitalong project.

The patterns (bit.ly/2019FibershedKAL) included the Ocean Beach Mitts by Alice Tang, the Bolinas Ridge Cowl by Marlie de Swart, and the Coast Side Cardigan by Alisha Reyes. Each of the three patterns is flexible and adaptive for a wide range of yarn styles and qualities, and supporting the pattern development process nourished a range of relationships from long time Fibershed producers to engaging a new community member. Fibershed coordinated pattern development including tech editing, sample knitting, photography, and graphic design, and simultaneously created a range of documents and learning opportunities for fiber producer members to make use of the Knitalong as a marketing opportunity.

Several producer members made Knitalong kits, which sold well at the Gala, Symposium, and local events such as Lambtown, and all participating producers were provided with display materials including table signs, sample copies of the patterns, and promotional postcards.

“[When] I went to the Fibershed Wool Symposium in November they displayed three different knit-a-long patterns that featured locally made fiber. I was hesitant to commit to another new project, until I saw these Ocean Beach Mitts by Tangramknits. This Red Creek Farm yarn dyed with weld & indigo was pretty hard to resist too. Such a beautiful color!”

– KENDRA SMITH, SHARED ON
INSTAGRAM



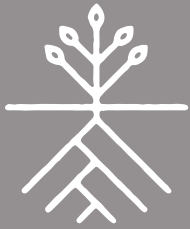
Above, Fibershed designed and hosted Knitalong information tables at the Gala and Symposium, featuring hand knit pattern samples, promotional materials, and a tactile swatch wall to guide knitters into selecting locally grown yarns for their next project. (Photo by Paige Green)



Left, This year's Knitalong campaign focused on three core patterns, as modeled by producer members Gayle Ravenscroft and Megan Bre Camp: the Bolinas Ridge Cowl designed by Marlie de Swart, the Ocean Beach Mitts designed by Alice Tang, and the Coast Side Cardigan designed by Alisha Reyes. (Photo by Paige Green)



The three 2019 Fibershed Knitalong patterns feature a common stitch pattern (2x2 rib stitch) yet transform into unique creations reflecting local fiber, local dye, and local creative talent. Left to right, photos from Instagram: @a_sonoma_garden, @stargrazers, @homesteadstafford, and @jessbdaniels on Ravelry.

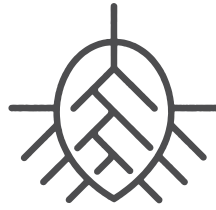


Climate Beneficial™ Agriculture Program

THE CLIMATE BENEFICIAL AGRICULTURE PROGRAM develops natural fiber and dye systems that contribute to the stabilization of our climate. Our work spans from researching and demonstrating agro-ecological practices to the efforts to revive heritage textile knowledge. We work directly with land stewards to produce peer-to-peer educational events, and we organize funding streams for the implementation of land management practices that build soil carbon and increase productivity naturally.

COMPLETED:

- At the close of the year, 15 Fibershed producers had achieved Climate Beneficial Verified status, and 22 producers were Climate Beneficial Transitional. Together, those 37 producers actively manage 135,337 acres of land to transform atmospheric carbon into healthy working soils and Climate Beneficial products to shift our material culture. An additional 29 producers have taken the preliminary step of testing soils at their farm to serve as a benchmark for intended soil regeneration practices.
- 30 Fibershed producers implemented a total of 83 new Carbon Farming Practices on over 1,040 acres and 2,730 linear feet.
- 70,849 pounds of wool was verified for Climate Beneficial status and was sold ‘in the grease’ into direct markets for use in biodegradable textiles and durable goods
- Raised \$49,901 in direct donations for the Carbon Farm Fund to implement Carbon Farming on Producer member landscapes
- Four new lines of clothing and durable goods were developed with Climate Beneficial Wool



Carbon Farming, Planning and Policy

- Developed a new framework for the Climate Beneficial Program, including an Entrance Survey and revised soil sampling protocols, designed to increase efficiency, rigor, and impact.
- Completed Citizen Science soil testing and reported results for 47 new sites and 13 new farms and ranches. In addition, delivered results to 16 producers covering 41 individual sites from 2018 soil testing.
- Provided one-on-one soil health consultation via 30-minute calls with staff soil scientist to 22 producers to discuss results of soil testing and initiate carbon farm practices
- Standardized and improved efficiency of soil sampling tools and methods
- Trained new soil sampling technicians and established a new project management system
- Collected and reorganized all data from 2016 to the present into a single streamlined, searchable database

Climate Beneficial Wool

BY REBECCA BURGESS

WOOL FIBERS continue to pulse off of California's rangelands every year in a diverse suite of colors, grades, and breeds, including heritage breeds. This year, 70,849 pounds of wool was verified by Fibershed as Climate Beneficial and removed from the global commodity supply chain and into domestic supply chains. This is a 28% increase in uptake of Climate Beneficial Wool over the usage rates we saw in 2018. Price premiums from this wool generated \$43,500 additional dollars that provided essential funding for land stewards in our region to implement and expand Carbon Farming and habitat restoration on their grazed landscapes—including windbreaks, riparian forest buffers, and beaver dam analogs (see images and CO₂e metrics on page 21).

There remains a significant volume of wool in California with tremendous potential for market development opportunities (the state produces over 3 million pounds of this protein fiber annually). While we have worked to increase California's wool utilization rates within local and domestic supply chains, we continue to see a growing need in 2020 to enhance demand through advancing carbon cycle education. Brands and designers need a deeper understanding of the important nexus between climate change amelioration, restoration of our working landscapes, and climate beneficial material culture.

To grow support for farmers and ranchers to enter the Climate Beneficial Wool pool, it is also critically important to continue to train the next generation of technical service providers who can support land stewards in developing and implementing Carbon Farm Plans, furthering their journey as Carbon Farmers. Through Fibershed staff efforts and partnerships with technical service providers in the Resource Conservation Districts and Natural Resource Conservation Service, we have been able to meet 23% of current producer member demand for Carbon Farm focused technical assistance.



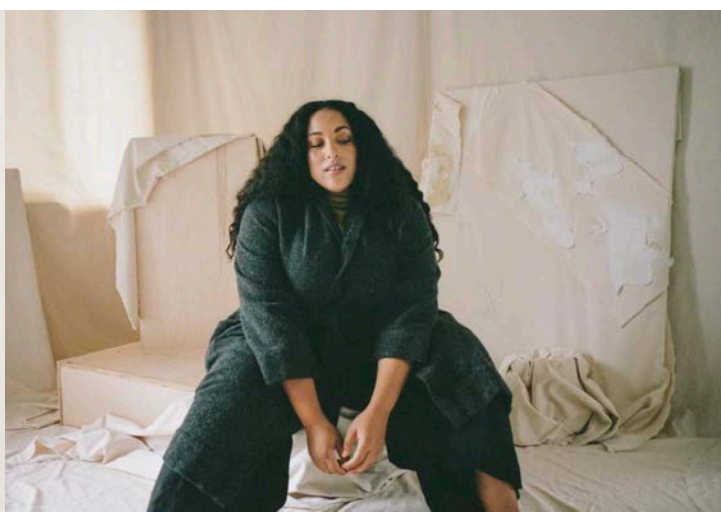
Coyuchi expanded into two new lines of Climate Beneficial Wool products this year (blankets and accessories) and retained and grew their line of pillows, duvets and mattress toppers from 2018. They are showcasing the use of both California's coarse and fine wools. They source from Jim Jensen and Loren Poncia of Tomales Bay for their bedding fill and they source from Bare Ranch for their blankets and wearable accessories. (Photos courtesy of Coyuchi)

"When you let love motivate your choices, it shows thoughtfulness and kindness for the people you care about and for the planet we all share. We expanded our Climate Beneficial Wool assortment with four new styles. This community has the potential to draw down over 3 million pounds of carbon, increase water holding, and reduce fire load. Through Fibershed's Carbon Farm Fund, we helped a partner ranch purchase incense cedar trees that will be planted as a windbreak, enhancing their carbon capture potential."

– EILEEN MOCKUS
CEO OF COYUCHI

“It’s been several years since we offered cold weather garments. This year, we are incredibly proud to offer wool the right way. We started over with everything we learned, and the new material we’ve developed is traceable, domestic, and Climate Beneficial. This collection, CWC for short, is built for cooler weather. Ritual and comfort are at the forefront: garments that provide repose, strength, and confidence, but that also ask a bit of a question, leave a little to the imagination. Soft folds, dynamic textures, and the contrast of earthy fiber paired with elegant silhouettes. I’m thrilled to bring new energy to this collection now, and I’m grateful for your support and patience as we’ve worked on it behind the scenes. I hope you love it. Warm, thick, and luxurious wools imbue a sense of safety and warmth. Familiar silhouettes are like old friends. Colors that are neutral and warm but near impossible to define; these give interest and spark to foundational clothing. Layers and jackets are barriers between your body and the whipping winds and chilled air, but also pieces of wearable art.”

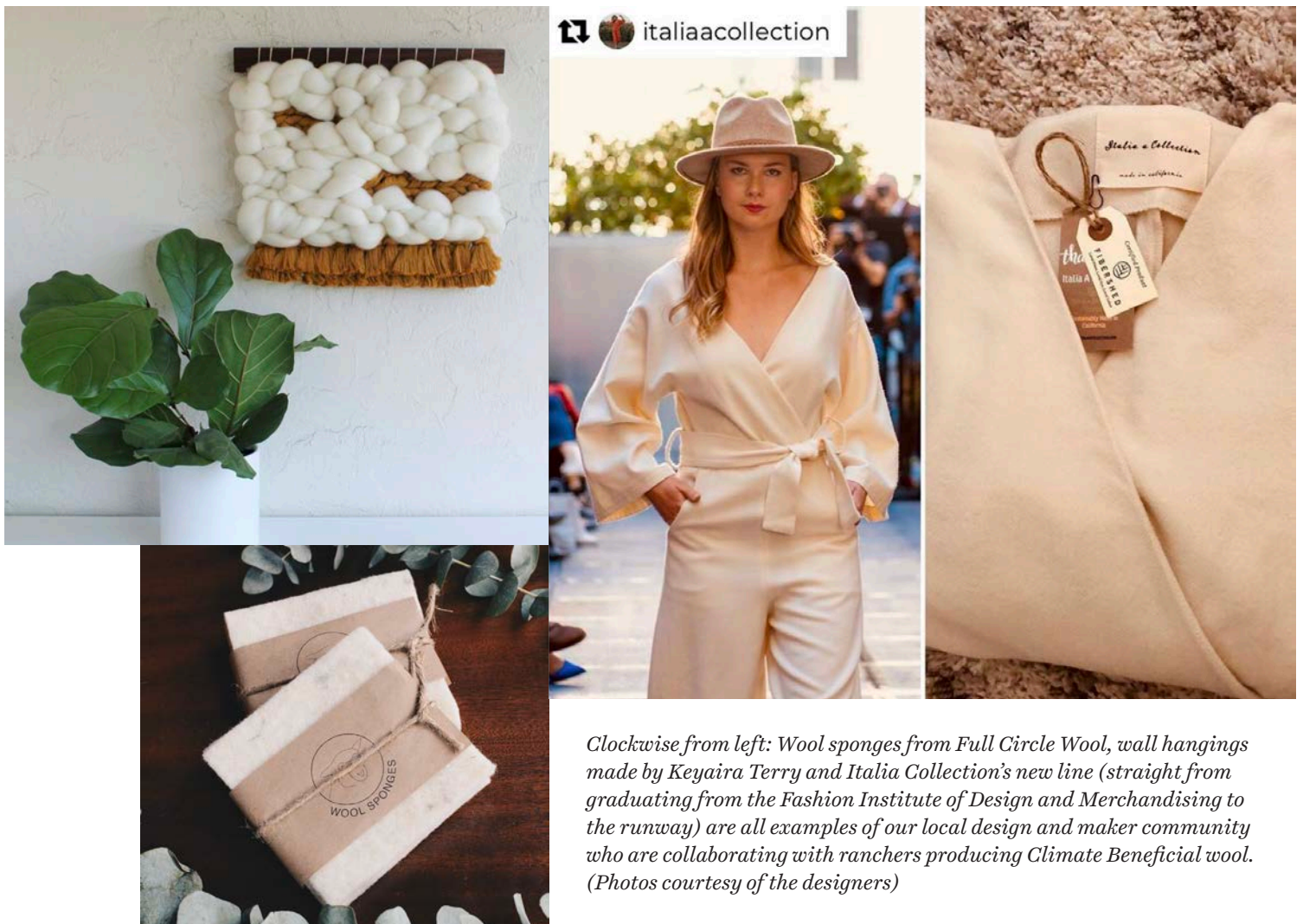
– ELIZABETH SUZANN, AMERICAN DESIGNER



Elizabeth Suzann’s 2019 Cold Weather Collection was made from a blend of Climate Beneficial Wool from Emigh and Anderson Ranches in Solano County and alpaca fiber sourced from Chavez ranch in Southern Oregon. Garments were first available through a pre-order system to estimate fabric usage, and are now available through Elizabeth Suzann’s signature lean manufacturing model where each piece is constructed once the order is received. (Photos by Zachary Gray)



The North Face developed a new Climate Beneficial Wool line in 2019 that fashioned a cold-weather men's coat in a new color-way. The North Face was the first brand in the United States to work with Climate Beneficial Wool, sourced from Bare Ranch in Modoc County. The company received accolades from Fast Company Magazine and a host of media channels. Their beanies, scarves, and coats have become an enduring favorite over the last three years.



Clockwise from left: Wool sponges from Full Circle Wool, wall hangings made by Keyaira Terry and Italia Collection's new line (straight from graduating from the Fashion Institute of Design and Merchandising to the runway) are all examples of our local design and maker community who are collaborating with ranchers producing Climate Beneficial wool. (Photos courtesy of the designers)



Bare Ranch Planted over 150 native Incense Cedars for a windbreak that will protect their lambing barn and sequester above and belowground carbon. This windbreak is part of a one-mile shelter belt that Bare Ranch planted in 2018 that is estimated to sequester 2.6 metric tons of CO₂e per year and 53 metric tons in 20 years. The ranch worked with the Natural Resource Conservation Service to construct eight beaver dam analogs in the high country where sheep graze in the summer of 2019. These willow dams are designed to enhance habitat for a small beaver population whose numbers are anticipated to grow as these habitats are restored. Beavers are a keystone species that enhance hydrologic function and healthy carbon cycling. Carbon sequestration modeling for beaver habitat enhancement is still being defined. (Photos courtesy of Bare Ranch; top right by Paige Green)



Emigh Ranch, in partnership with the Solano Resource Conservation District, is restoring 43.5 acres of riparian forest and understory at the confluence of the San Joaquin and Sacramento River deltas. These are areas intermittently pulse grazed by sheep. The restoration effort is a unique example of wetland habitat creation and carries a carbon benefit of 36,700 tons of CO₂e over 20 years. (Photo above by Paige Green; others by Erin Walkenshaw)



Climate Beneficial™ Pipeline Developments & Revisions

BY MOLLY OSHUN

SINCE FIBERSHED's Climate Beneficial program was first conceived, our membership has grown in size and diversity. In the fall of 2019, we began a process of refining the Climate Beneficial Pipeline to better serve the particular needs of our producer community. To achieve this, we developed an Entrance Survey for all land-based producers who are interested in joining the Climate Beneficial program. Starting in 2020, producers who complete the survey will be categorized into one of four archetypes and receive custom support moving through the Climate Beneficial Pipeline. We are presently refining the Citizen Science soil sampling protocol to leverage the best available natural and behavioral science with an eye toward the specific goals and needs of each archetype.



Stone Steps Farm became Climate Beneficial Transitional in 2019 after spreading 250 lbs of this Soil Building Seed Mix over five acres of their ranch in the Nicasio Valley of Marin. (Photo by Leigh Kenny)

Below, Climate Beneficial Transitional Producer Marie Hoff held a community workshop to install her Healthy Soils Program-funded hedgerow in December. (Photo by Marie Hoff)



Citizen Science Soil Sampling

BY NICHOLAS WENNER

WE CONTINUED our Citizen Science Soil Sampling program, providing quantitative measurements of the impacts of our producers' management practices on soil carbon levels. The program serves our grassroots producer community in Northern California by providing free soil sampling services. The service includes a visit by a trained technician to take the samples, testing, reporting of results, and consultation from a soil scientist, who helps the producer interpret the results and use them to inform management. Completing soil sampling allows producers to enter our Climate Beneficial Program, serving as a baseline for producers as they move toward Climate Beneficial verification. The data informs Fibershed's general policy and public communications efforts as well. To date, soils have been tested for 61 producers at 151 individual sites.

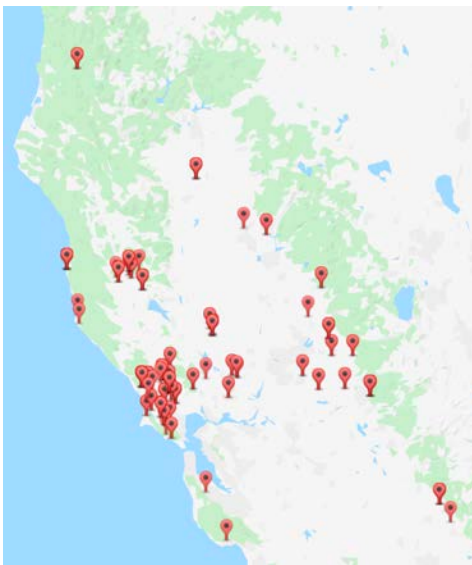
In 2019, we added 47 new sites and 13 new farms and ranches to the program, delivered results from soil sampling from both 2018 and 2019 efforts, provided technical assistance to 21 producers to interpret and use the results, refined our soil sampling tools, management systems, database, and developed a new and improved framework for 2020 soil testing efforts.

"Thank you so much! Really appreciate the hard work you guys do. I am using this baseline in my report for the landowners, hoping to secure a multiple-year contract grazing for them, and I think this low level of documented organic matter will help make my case!"

— CONTRACT GRAZER RUTHIE KING,
NEW AGRARIAN COLLECTIVE

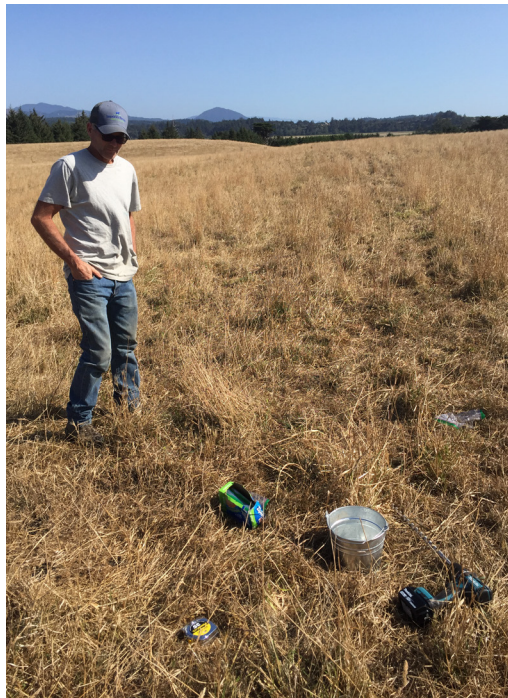
“As a very small producer, we’ve found Fibershed’s soil testing program invaluable. We received both data and a wonderful follow-up consultation to help us understand our results. We were encouraged by data that confirmed that our grazing practices were helping to sequester carbon and to add organic matter to our soil. We’ve also been inspired to do more. We can’t wait to test again and measure the results of our cover crop application this year. Thanks so much, Fibershed!”

– LEIGH KENNY, STONE STEPS FARM



Above, locations tested for soil carbon as part of the Citizen Science program since the program began in 2016. View the interactive map here: fibershed.com/programs/fiber-systems-research/citizen-science-protocol

Right, Marie Hoff sampling soil in a transect at Free Hand Farm in El Dorado County. (Photo courtesy of Free Hand Farm)



Soil sampling technicians completed soil sampling in collaboration with producers, taking samples for measurement of bulk density, and total organic carbon. Shown is Terry Wahl on his family's ranch in Southern Oregon that produces wool for one of our California based Regional Manufacturing Advisory Board Members. (Photos by Nick Wenner)



Policy Support for Carbon Farming in Fiber Systems

BY HEATHER PODOLL

COMPLETED:

- Submitted written and verbal comments to improve the California Department of Food and Agriculture's Healthy Soils Program (HSP) based on producer and technical service provider feedback gathered from our network.
- Eight Fibershed producers received a total of \$416,000 in Healthy Soils Program grants to sequester 955 Metric Tons (MT) CO₂e per year.
- Delivered individual presentations to administrators and program managers at California Department of Food and Agriculture (CDFA), California Air Resources Board, California Department of Conservation, and the Office of Planning and Research (OPR).
- Helped develop, prepare, and gain endorsement for Marin County's Drawdown: Marin proposal, Marin Carbon Farming Initiative.
- Coordinated with US EPA Region 9 staff to plan a Carbon Farm Tour in Solano County for senior administrators and staff to be held January 2020.

THE IMPACT of state and regional policy on the adoption of Climate Beneficial agriculture practices in our fibershed is critical. Public programs that offer financial and technical assistance to support this work are essential to lofting these systems and partnering with existing resources and innovation in the public sphere.

CDFA's Healthy Soils Program (HSP) was the first state-funded program in the U.S. to incentivize farming and ranching land management practices that reduce greenhouse gas emissions and increase carbon sequestration while improving soil health. A model for other states, the program has been evolving in response to public feedback on its structure and operations. Helping



Producers Alexis and Gillies Robertson of Skyelark Ranch in Siskiyou County installed a hedgerow, silvopasture, cover crops, windbreak and riparian forest buffer with support from HSP funds. (Photos by Alexis Robertson)

this program to continue to improve its responsiveness to producers' needs is an important priority in our advocacy at the state level and in outreach to our producer community. On multiple occasions this year, we offered public comments to advise HSP staff and managers with feedback from our producers' experience with the program, including verbal comments in board meetings and public listening sessions, as well as submitting official comment letters. This year eight Fibershed

producers received HSP grants to help them implement new carbon farming practices on their landscapes. Fibershed provided updates to producers about the Healthy Soils Program throughout the year, and offered information and support to producers interested in applying for funding, also helping producers to connect with their local technical assistance providers for application and implementation support.

Fibershed can leverage the impact of our contributions to state policy conversations by relying on collaboration and partnerships with allied organizations. We have worked with partner organizations to amplify our collective messaging on recommendations for state policy that can accelerate the adoption of carbon farming more widely in California, through HSP and other programs. In 2019, Fibershed became a member of the California Food and Farming Network (CFFN) to broaden our collaborations and partnerships to address systemic issues within our fibershed. CFFN's scope includes advocates for food access, environmental justice, and public health, whose work intersects with farming systems.



Guido Frosini of True Grass Farms has installed extensive hedgerows through his property in Marin County, including this one with funding support from the Healthy Soils Program. (Photo by Lynette Niebrugge)

In terms of county-level policy, Fibershed is engaging in a community process in Marin County to develop clear vision and action plans for ambitious solutions to climate change. Fibershed staff members participated in both the Community Engagement Council and the Carbon Sequestration Collaborative of the Drawdown: Marin Initiative in 2019. We helped to develop the Marin Carbon Farming Initiative proposal, documenting the potential for Marin County to sequester over 525,000 MT CO₂e on agricultural lands over the next 25 years, by engaging 180 farms and ranches in carbon farming across 90,000 acres, if a dedicated effort is quickly undertaken to secure funding and expand technical assistance for carbon farm planning and implementation in the county. One of only two proposals endorsed by the Drawdown: Marin Executive Steering Committee this year, the content of this proposal will be used to shape the current update to Marin County's Climate Action Plan Agriculture and Working Lands component.



Marie Hoff's 2019 HSP-funded project in Mendocino County demonstrated the potential for stacking multiple carbon farming practices on an intensively managed property to achieve significant carbon sequestration. Combining a hedgerow, silvopasture, range planting and compost application, these projects will sequester 4.1 MT CO₂e per acre per year across her 2.5 acre property. (Photo by Marie Hoff)

Carbon Farm Cohort

BY ERIN WALKENSHAW

COMPLETED:

- Organized 4 events for the Cohort 1 community in 2019: 2, 2-3 hour field walks on Cohort 1 member landbases focused on carbon farming; one informal BBQ for members to get to know each other better; and one peer-led plant propagation workshop.
- Six members of Carbon Farm Cohort 1 implemented Carbon Farming Practices in 2019. These included compost applications, prescribed grazing, extending riparian forest buffers, hedgerows, intensive silvopasture, tree/shrub establishment, and range planting.
- Final Carbon Farm Fund grants were distributed to Cohort 1 members.
- Identified the region that members of the next Carbon Farm Cohort program (Cohort 2) will be drawn from: southern Mendocino/northern Sonoma.
- Created an application document for future Carbon Farm Cohort programs.
- Developed the “Small Farm Carbon Farming Workbook” (bit.ly/SmallFarmCFWorkbook) that will be used both in future Carbon Farm Cohort programs and with individual producers that are working to create a carbon farm plan.
- Compiled a step-by-step process to help technical service providers developing a carbon farm plan for small-scale Fibershed producers. Small Farm Planning Process document (bit.ly/SmallFarmPlanningProcess)
- Produced 4 “Carbon Farm Practice Quick Guides” (bit.ly/CFPracticeQuickGuides) for different carbon farming practices (Compost Application on Rangeland, Hedgerows, Silvopasture, and Cover Crop). These guides are both standalone documents and part of the restructured Carbon Farming Resource Guide.

THE CARBON FARM COHORT program matured and coalesced in 2019. The pilot community, Cohort 1, solidified with each opportunity to gather and share information. The individuals took up the carbon farming ethos with more excitement and empowerment as they implemented carbon farming practices around their farms and ranches. Fibershed facilitated this evolution through event organizing, carbon farm practice implementation support, and by responding to the needs expressed by the members of the cohort. Additionally, in our work to grow carbon farming and the Carbon Farm Cohort program, we developed materials that will serve as a ‘tool box’ for future Cohort programs, and will be of service to other producers interested in increasing their potential to mitigate climate change through landscape level carbon sequestration.

Throughout 2019, Fibershed coordinated four events for the Cohort 1 group. Following the spring field walk focused on grazing and grass ecosystems, we held a fall field walk at Heartfelt Fiber Farm. Leslie Adkins, the farm owner, led the walk and a discussion focused on how to communicate the principles of ecosystem enhancement through carbon farm practice implementation with customers, farm visitors, and other members of the public. Fibershed also co-organized (with two cohort members) a summer potluck to further stimulate the community aspect of the cohort program, and held a peer-led plant propagation workshop in early winter.

These educational activities and the cultural support of the Carbon Farm Cohort program translated into carbon farm practice implementation on the farms and ranches of the Cohort 1 members. These included:

- At Heartfelt Fiber Farm and Monkey Ranch, members planted woody plant species in a Multi-Story Cropping system (CPS 379) and Oak seedlings in a Riparian Forest Buffer (CPS 391) respectively. To protect and establish these new plants, they installed self-



watering devices called Cocoons (made available to them through a Fibershed grant).

- Both Wild Oat Hollow and Freestone Ranch reported that just days after the plant propagation workshop, they each planted hedgerows (CPS 424) for a total of 500 linear feet combined.
- Windrush Farm is participating in a field trial organized through a partnership between Fibershed and NRCS staff, Kristan Norman. With help from the Cohort 1 mentor, Sarah Keiser, Windrush adjusted their grazing management using electric fencing and completed a Range Planting (CPS 550) that, in addition to increasing soil carbon, should also increase and improve the available forage.
- Monkey Ranch owners noted that, as a result of working with Richard King to develop a grazing management plan through the Carbon Farm Cohort program, they better understand Prescribed Grazing (CPS 528) and how it is implemented on the ranch by their livestock managers. The livestock managers, in turn, have taken to posting these grazing plans in a place where the whole ranch can easily see them.



Top, Windrush Farm field trial: Range Planting (CPS 550) and electric fence installation with assistance from Carbon farm Cohort 1 mentor, Sarah Keiser. (Photo by Paige Green)

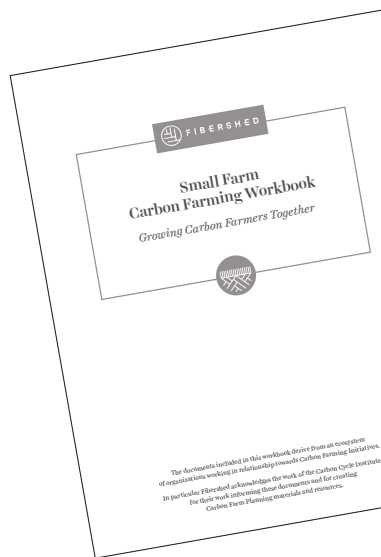
Above, oak seedlings planted in Cocoon self-watering devices as part of a Riparian Forest Buffer (CPS 391) at Monkey Ranch (Photo by Sue Cooper)



Shown at left, grazing plan at Monkey Ranch developed through their work with Richard King as part of the Carbon Farm Cohort program. The livestock managers post these in a highly visible area, which increases the understanding and “buy-in” around the practice and requirements of Prescribed Grazing (CPS 528) of the ranch owners and other operators. (Photo by Paigelynn Trotter)

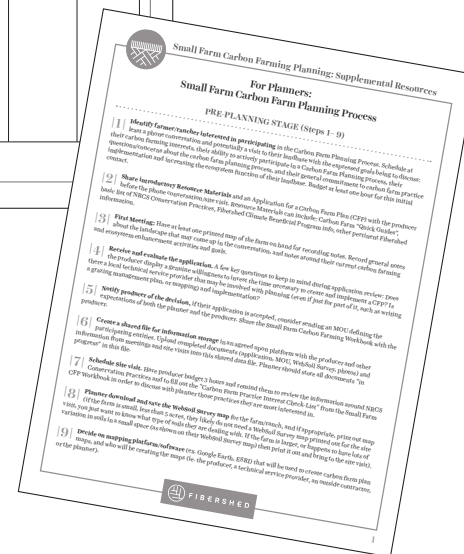


Scenes from the Cohort 1 peer-led Plant Propagation workshop in which producers exchanged plants from their landbases and shared propagation knowledge with one another (Photos by Erin Walkenshaw)



Small Farm Carbon Farming Summary Matrix

PRACTICE	FARM SPECIFIC APPLICATION		Annual Carbon Drawdown Equivalency (CDEs) Sequestered: Metric tons (Mg) per year		CO-BENEFITS	COMPLEMENTARY	REFERENCE
	Implemented	Planned	Implemented	Planned			
Site Specific Carbon Farm Practice (NCRS Conservation Practice Title and Fibershed Code (CPS))	Complete a list of implemented carbon farming practices. Note: this includes only historical practices within a zone, e.g. practices installed within the past 5 years to present date. Document the following information, use a 2 on a scale: 1. Practice dimension(s) size in acres and/or linear feet and width 2. Date(s) practice was installed 3. Outline or reference practice specific details, e.g. See plant species list Appendix X that which is a planting guide and for landscape/windbreak plantings.	Complete a list of proposed carbon farm practices. Note: this includes all anticipated practices proposed for use and being some planning "planned" for future. Document the following information in table 1-2: 1. Practice dimension(s) size in acres and/or linear feet and width 2. Date(s) of planned/ proposed practice timeline for implementation/ installation 3. Outline or reference practice specific details, in the plant species list Appendix X that will be used for site landscape planning.	Installed practices 1. Indicate installed date of annual CDE (e.g. May/June, based on the reported practice, dimension and year implemented) 2. "N/A" if there is no activity to report	Proposed practices 1. Indicate installed date of annual and proposed CDE (e.g. May/June, based on the reported practice, dimension and year implemented) 2. "N/A" if there is no activity to report	List co-benefits: Co-benefits are additional positive outcomes of a particular carbon farm practice, e.g. increased soil and water holding capacity etc. Practice specific co-benefits can be estimated from suggested sources as follows: • Agency websites that discuss carbon farming practices e.g. NCRS, RCD, UCC etc. • Personal communication with peer local technical service providers • COMET Planner report	List of additional carbon farm practices which support the proposed practice to ensure the efficiency and long-term goal of a practice, e.g. if the carbon farming practice proposed as a complement would include practices such as: planting, weeding, fencing, water infrastructure.	References where the practice was reported: 1. CDE May/June were identified/ installed 2. COMET Planner or Farm 3. Local Data, peer-reviewed research, etc. 4. If it is a "supporting practice" and also has an expected CDE, dimension size, state "Supporting Practice"



Above, the “Small Farm Carbon Farm Workbook” is a packet of documents that helps producers to focus on carbon farm practice implementation and to describe their vision for carbon drawdown through landscape management. Right, the “Small Farm Carbon Farm Planning Process” document for technical service providers details a step-by-step process to develop a Carbon Farm Plan for small farms.

Fibershed is excited to see the Cohort 1 group deepen their work to manage their landscapes through the lens of carbon and self-organize as a community. Members have started getting together of their own accord, helping each other with projects, and calling each other for general support.

In 2019 Fibershed also developed materials that will facilitate both future Carbon Farm Cohort groups and other carbon farming work. We distilled lessons learned from the pilot cohort program and our experiences creating carbon farm plans for small farms into informational documents detailing the process of these activities. The “Small Farm Carbon Farm Workbook” is a packet of documents that helps producers to focus on carbon farm practice implementation and to describe their vision for carbon drawdown through landscape management. Once completed, these documents can also serve as the foundation of a carbon farm plan for a small farm. As a supplemental resource, Fibershed put together the “Small Farm Planning Process” document for technical service providers, which details a step-by-step process to develop a Carbon Farm Plan for small farms.

To increase Fibershed’s ability to communicate the core principles of carbon farming and familiarize our producer community with carbon farming practices, we restructured our Carbon Farming Resource Guide into a series of “Quick Guides” that are informative “at-a-glance” documents that will help Fibershed communicate basic information about carbon farming practices to interested producers. They will serve as an introduction to that particular carbon farming practice, for example, Silvopasture (CPS 381), and act as a launching point for more intensive inquiry around specific soil health principles, carbon farm practices, and implementation. We plan to use these in many settings: at events when people are curious about carbon farming, as a resource for the Affiliate network, and as supplemental materials for the Carbon Farm Cohort program and Carbon Farm Plan development.

All of these materials are relational and intended to complement one another. Looking into 2020, Fibershed is excited to utilize these resources as we deepen our work to serve producers re-envisioning land management and working towards climate change mitigation through agriculture.



Shown above, “Compost Application on Rangelands Quick Guide” is one of a series of informative “at-a-glance” documents that will help Fibershed communicate basic information about carbon farming practices to interested producers.

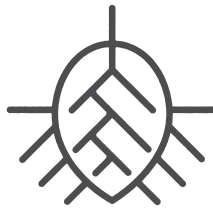
COMPLETED:

- Funded and supported the research and authorship of a literature review on the “Potential of Crop-Livestock Integration to Improve Carbon Sequestration and Agroecosystem function in Semi-Arid Croplands,” written by Fibershed partners Ph.D. candidate Kelsey Brewer and Dr. Amelie Gaudin and submitted to the *Journal of Soil Biology and Biogeochemistry* where it is now under peer review (publication date expected in first quarter of 2020)
- Produced an on-site assessment for potential contract grazing opportunity at a grain operation outside Petaluma
- Coordinated data collection and monitoring at a grain and grazing collaboration in Redwood Valley

Research on the Regenerative Potential of Integrated Crop Livestock Systems (ICLS)

BY REBECCA BURGESS

THE INTEGRATION of plants and animals within agricultural systems has become uncommon in the age of industrial fiber and food production. However, as challenges to our agricultural systems continue to grow—including increased demand for available land, a warming planet, de-carbonized and sterilized soils, etc., there is a clear and resounding need for significant changes in our approach to land management. Re-integration strategies for returning animal impact to our croplands is a stacked function approach that is providing solutions to include improved nutrient cycling, improved carbon sequestration, reduction or elimination of herbicides, opportunities for young agrarians who do not own land to remain or enter into contracted grazing businesses, diversification of food and fiber crops that can be generated from one land-base, and multiple other co-benefits that have been analyzed and identified in a new literature review, “Potential



Integrated Crop Livestock Systems (ICLS)

of Crop-Livestock Integration to Improve Carbon Sequestration and Agroecosystem function in Semi-Arid Croplands.” The paper has been researched, written, and submitted to the *Journal of Soil Biology and Biogeochemistry* by Dr. Amelie Gaudin and Ph.D. candidate Kelsey Brewer of UC Davis’s Department of Plant Sciences with support and funding from Fibershed. The anticipated publication date is the first quarter of 2020. Brewer’s research also includes a three-year field trial at the Napa County Resource Conservation District, where analysis of sheep grazed vineyards is now in its second year. Miguel Robles manages the field trial site, and Fibershed producer member, Kaos Sheep Outfit, is implementing the grazing of the vineyard site.

Integrated Crop Livestock Systems Climate Beneficial Verification

BY REBECCA BURGESS

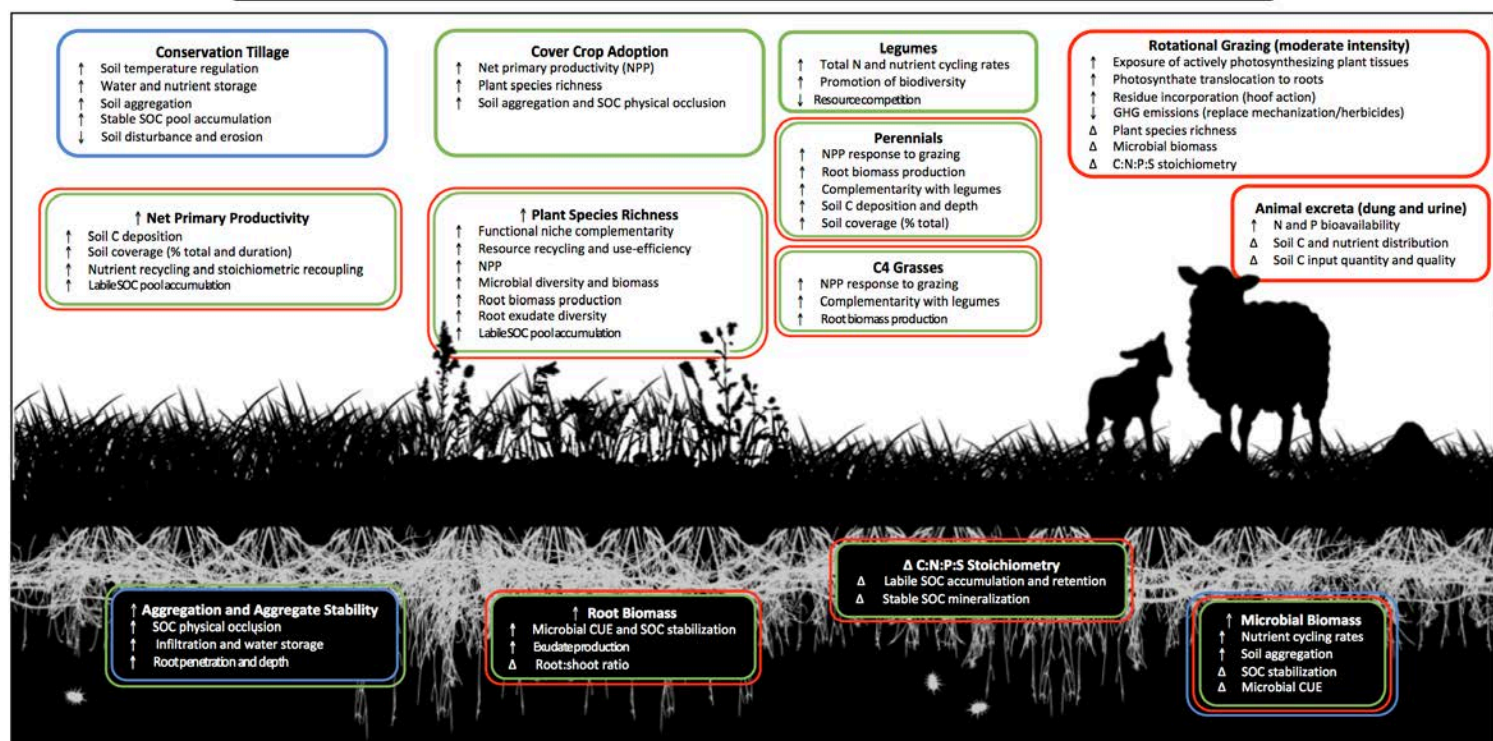
SINCE 2015, it has been an organizational goal to collaborate with a land grant University to generate peer-reviewed research on the soil health impacts of integrated crop and livestock systems and to develop a process to monitor mobile flocks of sheep and other ruminants efficiently and affordably, to verify the positive on-the-ground impacts that have been anecdotally documented by land-owners for decades. After many years of collaboration and coordination, we have

achieved both of the aforementioned goals through partnerships at UC Davis and, more recently, the Regen Network. In 2019, we established a methodology for tracking the impacts of grazing on croplands using satellite monitoring. Gisel Booman, Science Lead and geographic information systems expert from Regen Network, worked for several months with us to pilot a methodology to track flock locations and movements. Twenty-one satellite images were used to determine the presence, paths taken, and vegetative impact of sheep in the vineyard systems using what is known as Normalized Difference Vegetation Index (NDVI).

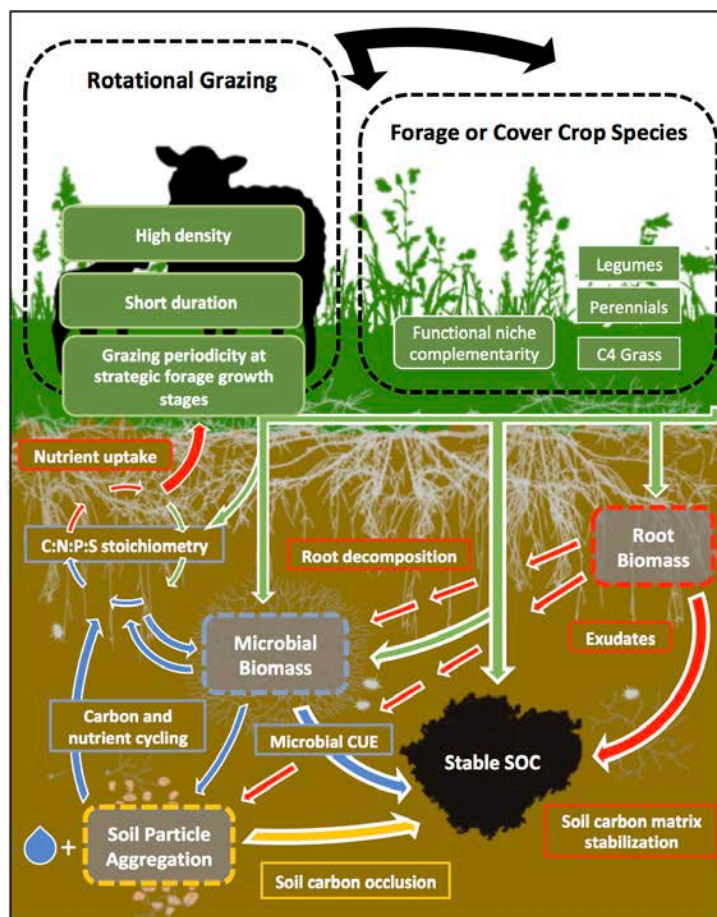
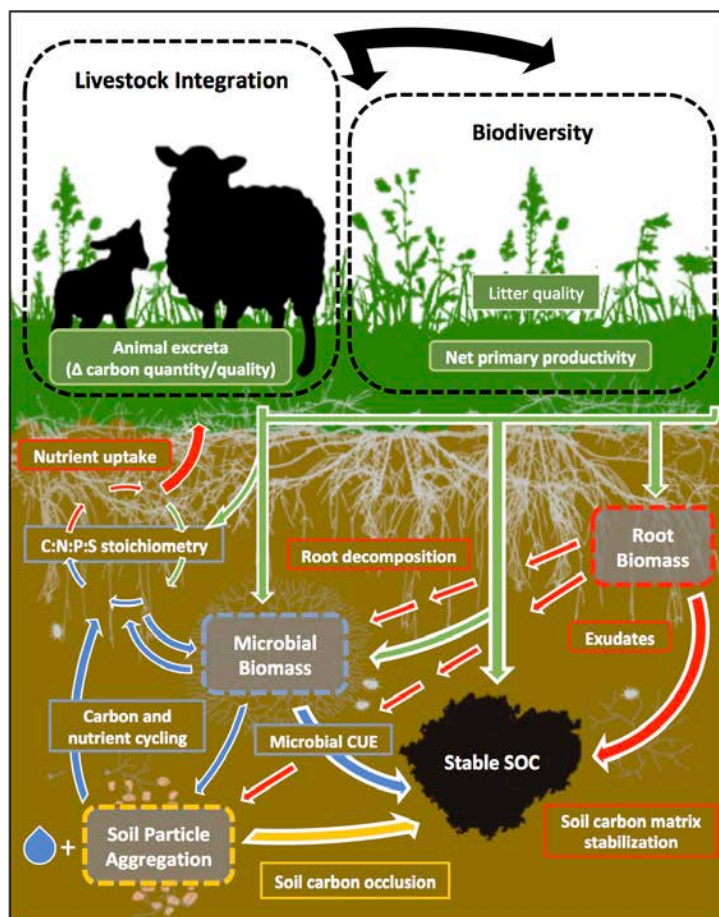
The next phase of the work that we achieved in 2019 was to initiate a two-day training with shepherds to train them to use an ArcGIS app by Environmental Systems Research Institute (Esri) on their phones to map fencelines and track grazing operations. It was determined that Esri’s Collector app was the most cost-effective geolocation software for our purposes. The use of Esri will mitigate the days and weeks of phone calls, texts, and emails that were required to locate flocks this past year. Fibershed staff provided Esri systems training in Spanish and English for shepherds, and the first usage trials began this winter. These trials will continue as the sheep enter the croplands to graze down winter cover crops. Esri will be used to generate maps based on the movement of the grazers. These maps will then be used by Regen Network to further validate the new methodology to track grazing using remote sensing technology. If the methodology is validated, it can be paired with localized peer-reviewed data from the Gaudin Lab to document the ecosystem service benefit of grazing crop systems.

For minimal additional time and labor, we can raise the visibility of agricultural ecosystem services among policymakers, markets, and the general public. We will expand our use of these monitoring technologies in 2020 and work to develop a strategy for enhancing

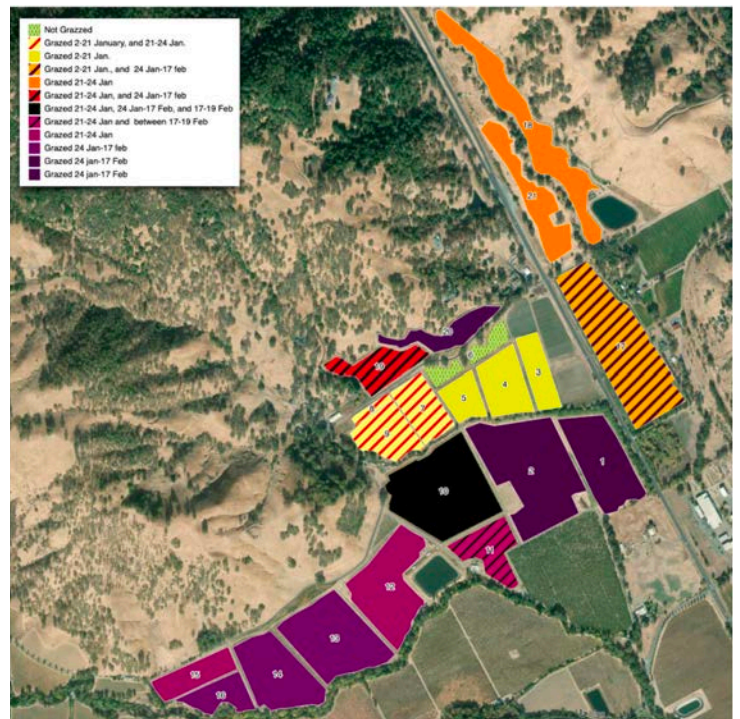
Figure 1: How might these integrated crop-livestock systems interact?



Elements that come into play in an ICLS system and how these elements impact ecosystem function (Illustration by Kelsey Brewer)



Nutrient and carbon cycling in ICLS managed systems (Illustrations by Kelsey Brewer)



The mapped area shows a set of 21 distinct polygons that have been evaluated for changes based on the Normalized Difference in Vegetation Index. Results of the satellite analysis show changes in NDVI which allows the project to affordably and easily verify where sheep have grazed within vineyard sites.

financial incentives for agrarians who are implementing Climate Beneficial land-stewardship through mobile flock management.

In an initial step towards providing incentives to contract grazers, the first integrated crop and livestock systems grazers became eligible for Fibershed's Climate Beneficial Wool program in 2019. Just over 5,000 pounds of typically low-valued, high-quality coarse wool was eligible for a 320% price premium due to the scientific documentation and satellite monitoring we were able to provide to the end-user (a family-owned mill that produces natural bedding). We look forward to enrolling more wool volumes from mobile grazers into this program in the years ahead.

Grazing and Grain: Growing Our Bread and Sweaters

BY MARIE HOFF

Integrating grazing into grain cropping is an ancient practice, more recently renewed under the name Pasture Cropping (developed in Australia by Colin Seis and Darryl Cluff). In California, Pasture Cropping is a form of Integrated Crop and Livestock System (ICLS). To support and promote this practice, Fibershed monitored and documented two burgeoning collaborations between producer members, and fostered a relationship with the California Grain Campaign to link grain growers with grazing operators. Community trials and citizen science research demonstrates the critical importance of planting a cover crop to provide livestock with two opportunities to graze a grain field: when the cover crop matures and after the grain crop is harvested. Baseline soil samples were collected at Doug

Mosel's Redwood Valley grain field just before New Agrarian Pastures grazed it. An additional opportunity to graze the fields of Mai Nguyen from California Grain Campaign is in the works. Other producer reports include Kaos Sheep Outfit's rice crop graze. Rice yields are reported to have increased by 40% relative to ungrazed areas.

Grazing For Fire Control: Fuel Load Reduction Demonstrations

BY MARIE HOFF

COMPLETED:

- Attended 3 Sacramento meetings with California Woolgrowers Association's Subcommittee on Fire & Grazing to brainstorm, strategize, and develop a 2019-2020 agenda and action plan focusing on educating state and local officials on grazing for fuel load reduction
- Gathered 6 producer member reports on grazing for fuel load reduction

- Monitored the Mendocino Grazing Collective, a collaboration between 3 Mendocino grazing operations, by collecting soil samples, setting exclusion sites, and interviewing participants
- Documented a fuel load reduction demonstration for NRCS' review at The Oak Granary in Mendocino County

The work of growing awareness and widespread adoption of grazing for fire fuel load took a multi-faceted approach in 2019. CalFire and other public land managers were previously unaccustomed to the idea of using grazing animals to perform vegetation management. They typically expect this work to be accomplished by mechanical means and therefore require trials and pilot project documentation to consider widespread adoption.

Natural Resources Conservation Service (NRCS) currently uses prescribed grazing and conducts fuel load reduction separately, but does not yet use prescribed grazing to accomplish fuel load reduction. Grazing managers know the benefits of grazing vegetation prescriptively. However, until October 2017, many did not perceive the demand for fuel load reduction grazing to be a viable market and are now working to organize and coordinate grazing specifically for fire fuel load.



Left: before grazing at Oak Granary Fuel Load Demonstration Site, October 2019; right: after Grazing at Oak Granary Demonstration Site, October 2019 (Photo by Marie Hoff)

To link these various stakeholders, from state agencies to private landowners to grazing managers, Fibershed supported a variety of grazing trials, monitoring, and documentation of grazing projects in the Northern California region. Documentation included taking baseline soil samples, setting up exclusion sites (for review in summer 2020), interviewing grazing managers and neighbors to grazing sites, and recording specific data on stocking rates and fire patterns. Luckily, in 2019 none of these sites were endangered by fire.

Kyle Farmer (Magruder Ranch), also a volunteer firefighter, noted that the 2019 Burris Fire outside Potter Valley was relatively easy to put out, stating that “you could chase after it and put it out with hoses” because the grasses were low due to grazing. Low grass height in late fall meant that flame height stayed low, and no embers flew (which might require bigger machinery).

Capella Grazing also did a trial project in Potter Valley at The Oak Granary to use prescribed grazing for fire fuel load at a site earmarked by NRCS. This project was documented in photos and firsthand accounting on stocking rate and vegetation reduction. Also, six accounts of grazing for fuel load reduction were gathered from Fibershed's producer community, including Sally Fox (Vreseis LTD), Sarah Keiser (Wild Oat Hollow), and Lisa Leonard (Wind Dancer Ranch). In 2019 Fibershed gathered and synthesized data while identifying key decision-makers to follow up within 2020.



New Agrarian Collective sheep

COMPLETED:

- Conducted literature review, interviews with industry leaders, first-hand experimentation, and series of site visits to develop and document bast fiber knowledge
- Synthesized and shared this research, making recommendations to 80 industry leaders with a presentation at the AATCC Soil and Sea conference and sharing insights with students and public audiences through Fibershed blogs, updates to Fibershed's website and graphic materials, newsletter updates, and a presentation to students at Montana State University
- Tested 3 batches of hemp fiber in 2 wool mills and 2 cotton mills for suitability to local textile production, in collaboration with 2 manufacturers who are developing scalable technologies that attempt to minimize water and eliminate synthetic chemistry from the bast fiber softening process.
- Developed processes ("recipes") for refining hemp fiber, blending it with wool, and spinning and weaving it into cloth using existing infrastructure and created 4 textiles with multiple weaves utilizing various blends of Climate Beneficial™ wool and North American hemp
- Developed a Bast Fiber Exhibit and provided public and brand education at 3 events with tactile exploration of bast fiber processing and hands-on comparisons between hemp, flax, and native bast fibers dogbane, nettle, and milkweed
- Co-led, coordinated, and completed a 12-member Western SARE grant to expand the scale and scope of research and demonstration focused on organic & no-till practice and cover crop and compost usage in California's cotton systems



Fiber Systems Research

- Coordinated the building of three Johnson-Su bioreactors (CSU Chico: www.csuchico.edu/regenerativeagriculture/bioreactor/index.shtml) to create microbe-diverse and fungal dominated compost extract on two large-scale cotton farms in the San Joaquin Valley that are trialing new soil regenerating practices
- Supported One Acre Exchange, a hemp partner in North Carolina, to complete the following:
 - Organized One Acre Exchange Art Show with six artisans using one acre of hemp fiber grown in 2018
 - Supported a 10-acre cottage-scale hemp crop research and development project
 - Presented work to the Rustbelt Fibershed in a skills/information exchange at their 2019 conference
 - Created baseline input/output agricultural model for industrial hemp production
 - Added a second anchor farm to our network to serve as a hub for 2020 production and new grower recruitment
 - Harvested and baled 30,000 lbs of raw hemp stalks for future projects and market-making
 - Sold bales and combed fiber to a processor in North Carolina, setting the stage for textile supply chain development.

Climate Beneficial™ Research and Implementation in Bast Fiber Systems

BY NICHOLAS WENNER

BAST FIBERS, which derive from the tissue in the outer layer of certain plant stems, including those of hemp, flax, nettle, and dogbane, have been highly regarded for beautiful, durable textiles throughout history and into the modern era. Over the past year, we have furthered our research to better understand and develop soil-to-soil systems for these unique fibers. In the plant, the hollow bast fibers transport dissolved sugars and lend structural support for the stem. In textiles, the fibers provide strength and many other unique properties. As crops, the plants can play a valuable role in crop rotations and provide high yields of both food and fiber with relatively minimal inputs. They have great potential as scalable alternatives to fossil-fuel derived fibers, which are polluting our waterways with microfibers and creating many other detrimental impacts. For these and other reasons, bast fibers are of great interest to Fibershed and affiliate communities.

This year we built relationships with, introduced, and collaborated with hemp and flax partners in the West Coast region, including Circular Systems, Fibrevolution, and Chico Flax toward a regional plan for large-scale bast fiber processing.

We developed a database of current understanding in bast fiber topics such as fiber development and morphology, manufacturing systems, and degumming methods through literature research, interviews with industry leaders, first-hand experimentation, and site visits. We synthesized and shared this research and made recommendations to 80 industry leaders with a presentation at the AATCC Soil and Sea conference. We also shared insights with students and public audiences through Fibershed blogs, updates to Fibershed's website



Hemp grown in Lead Process Engineer Nicholas Wenner's garden this year
(Photo by Nicholas Wenner)

and graphic materials, newsletter updates, and a presentation to students at Montana State University.

HEMP

Hemp has many uses. The stalk of the plant may produce around 1500 – 2000 lbs of textile-grade fiber per acre, compared to about 600-1200 lbs per acre for cotton, the flowering head can be used to produce CBD, and the remaining woody core can be turned into products such as building materials and bio-fuels. After nearly 80 years of prohibition, the cultivation of hemp began a process of legalization in December of 2018 with the ratification of the 2018 Farm Bill. Since 2014, Fibershed has engaged in active research on hemp to support and develop agroecologically sound methods for cultivating and processing this textile fiber in the US.

This year, in collaboration with LIFT Economy, we supported Winona LaDuke's indigenous hemp project in Minnesota, sharing Fibershed's past experiences with a presentation at the Anishinaabe Hemp Conference, conducting site visits, making recommendations on fiber processing, developing first-phase business models, identifying key products, and passing on the remainder of grant funds directly to the tribe to support the continued development of their vision.

"You addressed some of the critical challenges associated with fully realizing hemp's economic/ecological potential, specifically from an agronomic perspective. Doing so helps to attenuate the hyperbole without squashing the enthusiasm. I've come across many people in the industry who do not appreciate the interdependencies across the entire supply chain, starting with the agronomy. Pre-farm gate issues/challenges are especially noteworthy for hemp fiber varietals. I absolutely share the optimism associated with reintroducing industrial hemp into America's economic landscape, but unmoored enthusiasm risks creating an expectations bubble across a skeptical portion of a largely uninformed public. If expectations are hyped too high, then the inevitable setbacks (and there will be setbacks) will only embolden naysayers. If people make broad proclamations about hemp's potential without acknowledging that there remains a lot of heavy lifting, then this nascent industry will face increasing credibility challenges. So, in short Nicholas, I appreciated your introducing operational realism without being negative."

– JOHN CARPENTER, PRESIDENT OF BASTLAB, LLC
AATCC SOIL TO SEA CONFERENCE ATTENDEE



California growers such as Scott Park of Park Farming Organics in Sutter County grew hemp for CBD production this year. Breeds and cultivation practices for fiber-specific hemp are being developed and may find a greater place in California agriculture once fiber processing facilities are established in the coming years.
(Photo by Nicholas Wenner)



Fibershed supported Winona LaDuke's effort to establish an indigenous hemp industry in Minnesota at her Hemp and Heritage Farm by sharing experiences, making first-pass business models, and funding further efforts. (Photo by Nicholas Wenner)

A primary goal for bast fiber research this year was to develop blended yarns from our region's farms for the development of at least two textile samples. In collaboration with two manufacturers who are developing scalable technologies that attempt to minimize water and eliminate synthetic chemistry from the bast fiber softening process, we tested three batches of hemp fiber in two wool mills and two cotton mills for suitability to local textile production.

With such recent legalization, hemp regulations are still under development in California. Few farmers chose to grow fiber hemp this year, and California hemp fiber is not yet readily available. Given this reality, we sourced hemp fibers from other regions and focused on prototyping hemp processing with our local fiber infrastructure.

In addition to continuing to work with Bastcore, a fiber processor based in Omaha, Nebraska, we built a relationship with Circular Systems, a start-up that is developing a closed-loop fiber processing system and aims to source all energy and materials for their production from local crop waste. They aim to build a pilot facility for hemp processing in the US that produces textile grade fiber from hemp straw purchased as a by-product of the CBD and/or seed markets, and they are interested in locating this pilot facility in California. We worked with them this year to determine possible locations and partnerships, including advising them on possible sites, making connections with several Fibershed producers, and discussing possible pilot projects that would showcase both regenerative farming and manufacturing practices.

Using existing infrastructure in local mills, we developed processes ("recipes") for refining hemp fiber, blending it with wool, and spinning and weaving it into a cloth and created four textiles with multiple weaves utilizing various blends of Climate Beneficial™ wool and North American hemp. These results and recipes were shared with regional



Fibershed worked with Huston Textile Company and Mendocino Wool and Fiber Inc. to produce the region's first woven hemp/wool fabrics using local infrastructure from raw fiber to finished textile. The textiles are both strong and soft to the touch and include yarns with 10-90, 25-75, and 50-50 ratios of hemp to wool. (Photo by Paige Green)

mills and producers to accelerate the development of the local industry.

The fabric we produced tells many stories and embodies a vision for hemp in our fibershed: the hemp was grown and processed by partners in the United States using sustainable practices that can be implemented in California. The wool in the hemp/wool weft yarn comes from Kaos Sheep Outfit, whose sheep graze on public lands for fire fuel load reduction and in mutually beneficial arrangements with California vineyards. The all-wool warp yarns come from Lani's Lana. They are verified as Climate Beneficial™ based on the ranch's commitment to the annual implementation of carbon farming practices on California rangelands. The weft yarn was spun and the fabric woven at family-owned local mills.

The fabric casts a vision for what is possible and developing it allowed us to prototype production processes already available to us in the region. Due to the relatively early stage of U.S. hemp processing, the hemp fiber we used was somewhat coarse, and this can be

felt in the final product. To reach the full potential, we need a local producer of high quality cottonized hemp fiber who employs degumming processes that are technically, ecologically, and economically sound. Fibershed is currently working with multiple partners to realize this vision. Given the emergent state of hemp fiber processing and the current highly variable quality and unreliable supply of degummed hemp fibers, we have not tested the yarns and textiles we produced for mechanical properties other than shrinkage, which showed no predictable difference between hemp/wool and pure wool samples. Once local and effective degumming has been established, we will have the opportunity to use, test broadly, and refine the hemp/wool recipes we developed this year.

FLAX

Originating in the Fertile Crescent, the flax plant *Linum usitatissimum* has been cultivated for its seeds and fiber for more than 5,000 years. Wild relatives of this plant have been used for food and fiber for tens of thousands of years. Flax produces a very fine fiber,

requires less processing than hemp, and has additional value as a food crop. Our affiliates in the Pacific Northwest Fibershed are working in Oregon to develop a flax fiber processing mill, and Fibershed worked this year to support collaboration between local producers like Chico Flax and this neighboring bioregion. We also supported Chico Flax with site visits and mechanical design recommendations on small-scale flax machinery they are developing with CSU Chico.

In collaboration with indigenous land tenders and native plant growers, this year, we harvested and processed native bast fiber plants dogbane, nettle, and milkweed into spinnable fiber. Then we assessed suitability for textile production, developing materials into a Bast Fiber Exhibit that paired native fibers with hemp, flax, and cotton to provide both a tactile understanding of bast fiber processing and a hands-on comparison between fiber types. This exhibit was shared at Fibershed's Gala and Symposium and the AATCC Soil and Sea conference.

DOGBANE, NETTLE, AND MILKWEED

Nettle, dogbane, and milkweed have value as perennial crops that grow well in local climates. In addition to fiber, nettle has value as a food, medicine, and dye. Milkweed has additional value as a habitat for monarch butterflies. Dogbane produces a very fine and strong fiber that requires relatively little processing compared to hemp. A bast fiber processing system built around hemp and/or flax could support the exploration of other bast fibers as well. We envision an integrated system that could make use of multiple types of bast fibers.

For their unique properties as textile fibers and as crops, we look forward to continuing research on bast fibers in 2020 and to working in collaboration with regional partners to realize distributed, regenerative farming and manufacturing systems for this emerging industry.



Northern California producers independently produced their bast fiber textile “recipes” this year. Using similar processes to those we developed with hemp, Chico Flax worked with Mendocino Wool and Fiber Inc. to develop blended yarns using flax tow and local wool, which they are now selling on their website. The dyed skein was dyed with coreopsis by Heather Podoll. (Photos by Nicholas Wenner)



Right and below: This year Fibershed supported local and regional flax producers Sandy Fisher and Durl Van Alstyne of Chico Flax to develop regional capacities for the production of linen. (Photos by Paige Green)





Left, Fibershed partner and bast fiber researcher Nicholas Wenner with wild nettle (Urtica dioica), which grows wild in wet areas, often by rivers and lakesides. Below, educator Edward Willie harvesting and tending dogbane (Apocynum cannabinum), which grows throughout much of North America. Dogbane's species name derives from the similarity of its fibers to hemp. (Photos by Nicholas Wenner)



Environmental Program Director Reyn Akiona surveys part of a 4-acre site at Bowles Farming Co. that is working to bring an abundance of native milkweed (Asclepias fascicularis) seed to restoration projects in the San Joaquin Valley. Milkweed produces bast fiber as well as a cotton-like fiber from its seeds, which we are investigating as an insulative fill material. (Photos by Nicholas Wenner)

Native bast fibers like dogbane, nettle, and milkweed were tended, harvested, and processed into spinnable fiber to assess suitability for textiles and to include in a Bast Fiber Exhibit. The exhibit provided public and brand education at multiple events with a tactile exploration of bast fiber processing and hands-on comparisons between hemp, flax, and native fibers like dogbane, nettle, and milkweed. (Photos by Paige Green)



One Acre Exchange 2019— Fibershed-supported Cottage-scale Hemp Research and Development in North Carolina

BY TYLER JENKINS

THE YEAR BEGAN with a “One Acre Exchange” themed art show at a community art space in Durham, North Carolina. We supported six artisans in the show and drew over 400 people to the space in the three weeks that the exhibit ran. All of the artists we engaged were provided our hemp fiber to generate their pieces. This event was co-created with The Piedmont Fibershed Affiliate, and a local artisan from Durham. Immediately after finishing the show, the Piedmont Fibershed held one of its first official meetings, and over 20 artisan, farmer, and maker participants attended. The artisans involved in the show and others within the Fibershed Affiliate have indicated they would like to use more hemp for future projects. One inquiry we received included a request to construct farm-to-table dinner accessories, including table runners, napkins, and other pieces of fiber art to construct a space for a food and fiber experience.

We focused on meeting a series of agricultural objectives this year—including stabilizing a partnership with a well-regarded, long-time member of the agrarian community in our region. We were able to successfully farm 10



acres with our new farm partner, Jeff Griffin, who is known as Farmer Jeff. Jeff has been farming for three decades, and in this last decade, he has realized that organic and regenerative agricultural systems are the future of his family farm, and for the planet. Ten organic acres of hemp were harvested, resulting in 64 bales for processing. Important for this year were the observational learnings about when to plant, how much to plant, and what systems for harvest need to be utilized to ensure a smoother road through the processing supply chain. Also, we learned this year what needs we have for seed, where our partnerships can help push forward the industry, and how we can start to get the best information about raising hemp to farmers who are interested in trying to grow it. Jeff has set the very best field he has on his farm aside for the opportunity to grow hemp next year. He can grow up to 30 or 40 acres, which would be more than enough to stimulate a suite of local textile partnerships, and would also provide us the critical opportunity to grow a stock



Top left, Farmer Jeff Griffin walks over 50 acres of his best land, envisioning a regenerative future. Above, Tyler Jenkins makes adjustments to the engine during a field test of the field decorticator.

of organic seed that is adapted to our climate. Jeff is a key partner because part of his farm operation includes a seed cleaning and bagging facility. With the right genetics and planting timing in 2020, we will grow hemp for seed and be able to harvest, clean, and bag seed for distribution to farmers for years to come. Also, to be able to offer seeds



The One Acre Exchange art show was a collaboration with local artists utilizing hemp grown from the previous year's field trial, held at The Carrack community art space in Durham, North Carolina.

to our community, we are aggregating our 2019 data on yield expectations, planting notes, and harvest dates so we may provide an open-source education to all those who would like access to it.

We provided a 600 lb bale and 300 lbs of combed and dehulled fiber to a processor located in the state of North Carolina. This is significant in that it represents the first, as far as we know, legitimate exchange of hemp fiber product from an organic grower to a processor in the state. The processor is going to wet process the hemp into what is hoped to be a spinnable fiber. At that point, we'll have samples of NC Grown hemp that have been converted to spinnable fibers right here in the US that can be used as a proof of concept and further development of the textile system. Creating a legitimate, local, and happy farmer to processor relationship (and many of them), is a primary goal for this project in the years ahead.

With these efforts, One Acre Exchange is poised for a significant leap in 2020. Stabilizing production was a dream three years ago in our first variety trial. The effort we will undertake to expand our agricultural knowledge base this coming year is to explore the pros and cons of roll-baling vs. baling fiber. We will assess the implications for retting, fiber quality, and overall yields. What we are building here through the One Acre Exchange is a consortium of people that are working in various sectors who, together, constitute a robust system that could continue to bring hemp textile production forward at the regional level. One Acre Exchange is eager to continue to build bridges between individuals and organizations within this consortium so that we can refine our research and demonstration efforts, grow our partnerships, and continue to open source our learnings to lift all those who want to build a regional, regenerative, natural fiber economy in North Carolina.

Regenerating Cotton Systems

BY REBECCA BURGESS

FIBERSHED developed new relationships this year with three San Joaquin Valley cotton growers representing over 5,000 acres of cotton cultivation, whose farms span from Kern to Merced County. Bowles Farming Co. in Los Banos, Teixeira Bros in Dos Palos, and Nathanael Siemens in Buttonwillow; as well as Capay Valley colored cotton grower and breeder, Sally Fox, have collectively signed on to work together to trial a suite of practices to determine how to develop a model for Climate Beneficial, regenerative cotton that contributes to carbon farming in our region. We were and are so glad to be able to support the partnerships that formed and continue to form throughout 2019. We have our fingers crossed that all of our collective hard work to build a team that includes the National Center for Appropriate Technology, Chico State's Center for Regenerative Agriculture and Resilient Systems and the University Cooperative Extension for Kern County will yield research funds (by March of 2020) to allow us to research and further our understanding of the following:

Research Objectives

Trial #1 – Use of winter covers and compost in a commercial cotton production system.

1. Conduct a three-year field trial to assess the impact of compost applications and winter cover crops in a commercial cotton production system (as independent effects and in combination) on soil health (SOM; SOC; C:N; aggregate stability; bulk density); cotton yield (tons/acres); fiber quality (fiber length; fiber diameter; fiber strength) and water holding capacity (water infiltration rates). We will assess initial and annual soil health indicators, and we will measure yield and fiber quality in fall 2021 and 2023.

2. In year three, conduct an economic analysis on compost application and winter cover crop practices on net return per acre, considering potential new marketing opportunities.

Trial #2 – Impact of No-Till on cotton production in a biologically-based, certified organic system.

1. Establish and document best practices and equipment needs for no-till organic cotton production—document pros and cons
2. Conduct a three-year field trial to assess the impacts of full tillage (with cultivation), minimum-till, and no-till organic cotton production on soil health, cotton yield, cotton quality, water use and economic return. We will assess initial and annual soil health indicators, as well as yield and fiber quality analyses in fall 2023

To jump-start the cotton trials in 2019, Fibershed efforts began in January. They were initiated by offering our cotton farming colleagues an organic multi-species cover crop that would protect their bare soil over the winter and create opportunities for the photosynthetic capture of carbon. Nathanael Siemens of Buttonwillow trialed a cover crop in the winter and spring of 2019 (more on that below), and John Teixeira planted his seed just after the December rains in 2019. We also offered to coordinate the materials and the building of Johnson-Su bioreactors at each farm (the bioreactor makes a fungal dominated compost and is named after Dr. David Johnson and his wife, Hui-Chun Su.) Bowles Farming Co. and Teixeira Bros. Farm have built three bioreactors in total to date, and Nathanael Siemens and Fibershed are conducting a workshop in 2020 to build a bioreactor at his Kern County location.

2019 Annotated Farm Trial Report: Organic, No-till Cotton in Buttonwillow, Kern County California

BY NATHANAEL SIEMENS

Nathanael Siemens, third generation San Joaquin Valley farmer, reflects on his groundbreaking trials to establish new practices for cotton production, undertaken in collaboration with Fibershed

2019 was a year of wild progress and challenging failures in my attempt to farm cotton regeneratively. Every challenge inevitably led directly to partnerships with multiple organizations and creative individuals intent on finding ecosystem-based solutions. Some of the problems reflected much deeper social and agricultural issues. For example, the salinity of my irrigation water was detrimental to the cover crop, but this same problem has precipitated the fall of empires over the millennia. This global scope has necessitated my collaboration with researchers, farmers, and advocates to leverage the power of natural systems to address the root of the problem, a healthy soil that robustly cycles nutrients and resources.

My other highs and lows were based on the fabricating of technology to implement the theory of growing cotton without tillage or chemicals. The functional efficiency of novel implements takes time and collective revision to achieve. This process has led me toward many new and diverse collaborations with local fabricators and researchers, domestic and international initiatives, and creative farmers. Another practice that shows promise and has attracted interest from a diverse audience is the integration of animals into the cropland system. This year we used sheep for the termination of the cover crop and spreading mulch and began discussions with researchers to help us use them in defoliation.



Top left: Taking winter soil samples to test for soil carbon baseline

Bottom left: 3,192 pounds of multi-species cover mixture was seed drill planted onto 10 acres including: Cayuse Oats, Patron Wheat, Merced Ryegrain, Stockford Barley, Crimson Clover, Lana Vetch, Purple Vetch, Magnus Peas, Dundale Peas, Bell Beans, California Poppies, Plantain, Black Oil Sunflower, Daikon Radish and Common Yellow Mustard

Above right: Once the Cover crop had germinated and began to become established, distinctive growth patterns became obvious. According to the various consultants associated with the field this year, the cause of those patterns was caused by off the chart levels of salinity inhibiting the growth of certain families of plants such as legumes and grasses. Brassica and Asteraceae were the least impacted. (Photos above by Nathanael Siemens)



Left: Cotton Seed was procured from 2 separate sources. The 1st was a 20 lb Acala lot mailed to Kern county by Dr. David Johnson. The 2nd was a 100 lb Acala H4 picked up from Marty Rhoads of Tom Sheally Farms in 5 Points, CA from Harrison Farms of Yuma, AZ. In the course of searching for those seeds, a fair amount of effort was spent by many of us to find non-GMO, untreated cotton seed, which we were unable to source in California because it didn't exist. On May 21 we planted H4 Acala at a rate of 8 lbs per acre over 10 acres using the same John Deere 3300 seed drill as was used of the the cover crop seeding. In the case of the cotton however, we closed up the seed chutes except for 4 rows each set 40 inches apart. (Photo by Paige Green)

In general, my goal for the year was to figure out the details of equipment, calendar, cover cropping, and mulching decisions that would lead to a successful harvest. Although I am satisfied with many of the answers, some of those questions are likely to remain unsolved for an unknown period of time. Because of that, I think the most significant achievement this year was in the formation of a diverse and dedicated network of partners. Admittedly, none of them are claiming to have an easy answer. Still, Fibershed has been a courageous ally in building a community that engenders a farming system to impact all of the areas that it touches positively.



Sheep grazing for cover crop termination. Once the cover crop was well established we brought in a flock of 25 sheep on May 7. (Photos by Paige Green)



Left, cotton in flower at Bowles Farming Co. (Photo by Paige Green); above: cotton growing in the cover crop stubble (Photo by Nathanael Siemens)



Above: After the initial spring irrigations, we ran into a different set of problems. In a tillage based system, plow cultivation works as follows: Weeds are suppressed by plow action as the blade removes soil and weeds from the trough of the furrow and throws it up to the top subsequently burying weeds growing along the crest. The consequence of this cultivation is to reinforce the geometry of the furrow architecture and counteract the erosive effects of irrigation in the early season absence of stabilizing crop (cotton) root systems. In a no-till system, ideally rain-fed cover crops can provide bed stability in advance of summer irrigation. Given the climate of the Southern San Joaquin Valley, these assumptions will not play out every year. Spring 2019 had adequate rainfall, but we did not form the beds until after the cover crops had already established in late spring. So in our trial, we were irrigated directly onto berms that had no root systems established. The result of this, in addition to the shrinking and expanding characteristics of heavy clay soil led to constant berm failure. In a no-till system a manager would address this problem by making a second tractor pass on the berm or preempt the issue entirely by making wider berms initially. (Photos by Nathanael Siemens)

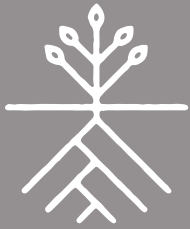


Above: Forming beds after cover crop termination and cotton planting

Right: By mid-summer, due to the weakness of our mulch layer, weed pressure had caught up to our cotton crop. At this point we should have utilized a mechanical weeder in the form of an in-row roller-crimper or an in-row mower to reestablish the target crop's access to sunlight and nutrients. At some point, even a slow growing crop can shade out weeds. However, at the point that we needed to utilize these implements, we were logistically constrained. Specifically, the implements were not in our possession at the right time. Therefore, this represented



the end of our 2019 trial. Shortly after the point of preparing the field for the next growing season, the fabrication of our in-row roller crimpers was completed by B&W Implement. We look forward to implementing them in 2020.



Consumer Education & Advocacy Program

FIBERSHED WORKS TO CONNECT wearers to the source of their clothing, shifting the demand away from fast fashion and towards ecologically sensitive, locally grown and made products. A series of educational events, curriculum development, and digital communications offered to the public throughout the year develop soil-to-soil material awareness and build support throughout our communities.

Education

BY JESS DANIELS

COMPLETED:

- Launched the Soil to Soil podcast with six audio episodes (bit.ly/FibershedPodcast) spanning educational topics of Fibershed's core work from climate modeling to milling infrastructure to bioregional organizing
- Introduced the Fibershed Clothing Guide (First and Second Edition) (bit.ly/ClothingGuide2) as a print and digital booklet offering a menu of actions and options, with strategic outreach including a blog series, high school and college presentations, and a dedicated Fast Track to Slow Fashion webpage (fibershed.com/programs/education/slow-fashion)
- Produced and published a series of 6 articles on California cotton (fibershed.com/category/cotton/california-cotton-fields) and opportunities for regenerating soil health, economic opportunity, and social justice
- Published a three-part series of blogs exploring why and how sheep are sheared, including an in-depth look at the choreography of shearing and a facilitated Q&A on Instagram to groundtruth misconceptions (fibershed.com/category/wool/shearing)
- Issued a 4 article arc covering an annual cycle of bast fiber research (fibershed.com/category/bast-fiber) including North Carolina and Colorado hemp, California and Oregon flax, and bast fiber processing and blending iterations
- Created a community engagement campaign through email newsletters and social media that generated funds for the Carbon Farm Fund with the greatest yield from small donors to date (total funds noted in the Climate Beneficial™ Agriculture section)
- Shared seasonal updates on the research-backed benefits of integrated crop and livestock systems through social media posts and events including the Wool & Fine Fiber Symposium and Ovines in the Vines
- Engaged Bark Media consultants for a two-part Communications Strategy workshop that enhanced program communications and provided concrete tools for growing outreach
- Supported journalist outreach, queries, and education for in-depth press features and placement of producer member products and narratives for promotional exposure
- Created original educational, social media content with a weekly cadence of 17 posts across Instagram, Facebook, and Twitter
- Developed and distributed 17 email newsletters



Education, Events, and Trainings

THROUGHOUT 2019, Fibershed cultivated and disseminated educational content connecting wearers, farmers, knitters, writers, and designers to fiber and dye systems that build soil and protect the health of our biosphere. From social media to print materials, email newsletters to podcast episodes, in-depth blog articles, and press features, Fibershed expanded awareness and support for soil-to-soil material culture with a total digital reach that grew to more than 64,000 followers and subscribers.



Working with a talented cadre of writers, photographers, and audio producers, Fibershed framed, edited, and launched a steady stream of in-depth educational series this year. Throughout the summer and fall, we worked with writer Esha Chhabra to examine California cotton systems with four producer-focused interviews and two articles highlighting the challenges and opportunities for regeneration and resilience. After years of communicating the science and benefits of Climate Beneficial Wool, this series was well-received by community members who welcomed and praised it as informative and important for understanding the complexities and differences between cropland and rangeland fiber production.



Roian Atwood, Director of Sustainability at Wrangler and Lee Jeans highlighted the conclusion of Fibershed's series on California cotton, which was cross-posted on Resilience and on the California Climate and Agriculture Network blog.

Bast fiber is another popular topic and area of interest, and Fibershed rounded out the year with a series of blog posts providing detailed updates on flax and hemp production and processing in the United States. By lifting up voices from One Acre Exchange in North Carolina to Fibrevolution in Oregon, and drawing together research efforts locally from the Chico Flax Project and farther afield at the Rezolana Institute, Fibershed hosted a virtual conversation on hemp and flax rooted in the realities of the growing and processing landscape.

Across digital platforms, we shared updates on research, community news, supply chain collaborations, and events. With a strong social media presence, dedicated email newsletter list, and the first season of the Soil to Soil podcast, Fibershed messaging mixes inspiring imagery, producer-focused promotions, and critical climate messaging to drive impactful shifts in material culture.

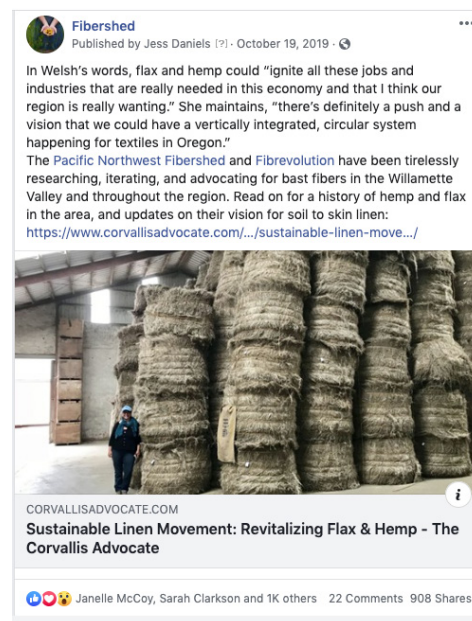
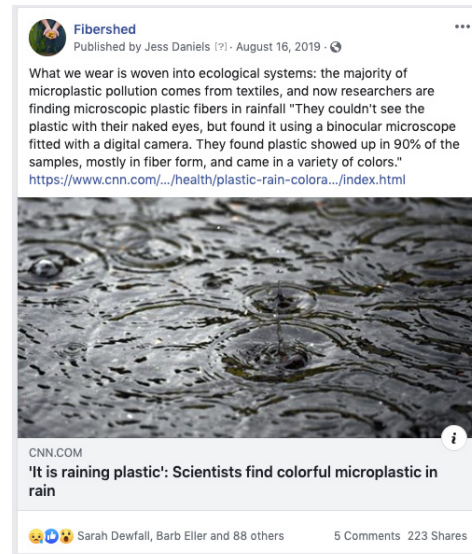
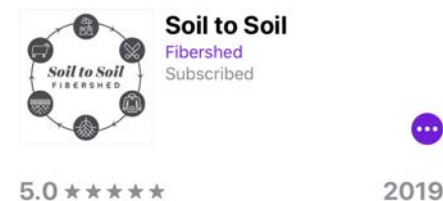
"Every time Fibershed tags me in a post, my followers grow."

— ALISHA REYES, FOUNDER OF FIBER CIRCLE STUDIO, MEMBER OF THE NORTHERN CALIFORNIA FIBERSHED PRODUCER PROGRAM, AND DESIGNER FOR THE 2019 FIBERSHED KNITALONG

The beat of Fibershed communications serves to grow momentum for regional, regenerative textile economies by bridging and deepening the tactile and intellectual learnings cultivated through keystone events like the Fibershed Gala and the Wool & Fine Fiber Symposium. As *Fashionista* editor Whitney Bauck noted:

"Almost a decade in, [Fibershed] has proven that "thinking local" isn't just a nice saying for people who really like farmer's markets. It's a strategic way of responding to the mounting climate emergency... In short, [the gala] created a microcosm where the future Fibershed envisions — one in which our clothing is made with care and creativity by people who treat each other and the earth well — could be made manifest. That future may not look like the one Space Age designers predicted. But it sure looks a lot more like home."

Throughout the seasons, Fibershed staff and collaborators provide educational presentations on soil to soil systems to a range of audiences both in-person and at times through video conference. From global industry conferences like the 2019 Textile Sustainability Conference to local high schools and fiber guilds to policy-focused workshops, Fibershed shares a vision and practical case studies for Climate Beneficial material culture. In 2019, Fibershed delivered 35 presentations to over 2230 people, including Climate Action Planners, high school and college students, residents of our Fibershed, farmers and ranchers, textile and fashion designers, and more.





(Photo courtesy of Project Green Challenge)

Below, Rebecca Burgess joined a panel discussion on Regenerative Agriculture For Human Health at Futurewell in Marin County, an event “bringing together the game changers and innovators in all areas of health, agriculture, mindfulness, and the healing arts” with Finian Makepeace, Loren Poncia, Jim Jensen, and Dr. Zach Bush. (Photo by Molly Oshun)



Heather Podoll presenting alongside Kathy Webster from TomKat Ranch and Sheila Barry from UCCE at Elkus Ranch's Celebrating our Coastal Fibershed event. (Photo by Courtney Zimmerman)

“The speaker series at PGC Finals was truly remarkable. After listening to Rebecca’s responses in the discussion panel, it made me realize how much I, as a citizen of India, lack so much knowledge of my very own history. It made me realize that the younger generation of India is losing touch with the ancient practices from our own Indian history that could help us protect our environment today. It inspired me to research more and learn even more to work on this problem.

With organizations like Fibershed out there trying to make a difference, I as a Gen Z (the generation who has the choice to decline global crisis like climate change) applaud your efforts and your love towards the environment. You truly are a role model for us. I, along with my fellow finalists, pledge to continue to make change with the wisdom that we all have gained.

Once again, thank you so much from the Turning Green family and all the finalists and everyone whose lives you have inspired. Keep doing what you do and stand tall as a role model for us. Also, again I thank you very much for taking time out to spend an enlightening Saturday with us.”

– NISTHA SINGH, PARTICIPANT IN THE PROJECT GREEN CHALLENGE PROGRAM AND FRESHMAN PURSUING COMPUTER SCIENCE AND ENGINEERING AT MANAV RACHNA INTERNATIONAL INSTITUTE OF RESEARCH AND STUDIES IN NEW DELHI, INDIA



“Your talk inspired so much movement in the room. It shifted so much of what’s possible for our fibreshed here. The students and faculty were so moved listening to you speak, and it sparked some amazing dialogue about what’s possible here. I really can’t thank you enough. For the time and energy you’ve taken to do this work, and your generosity with how you’re sharing it with others. It gives us something tangible and real to work towards, in uncertain times.”

– EMILY SMITH, EDUCATOR AT EMILY CARR UNIVERSITY OF ART + DESIGN



Fibershed’s Lead Process Engineer, Nicholas Wenner, presented a soil-to-soil and regional economic perspective on hemp and bast fibers at the Soil & Sea Conference, including providing a hands-on demonstration of dogbane processing for industry professionals who work at major brands nationwide. (Photos by Jess Daniels)

Fibershed, the Book

BY REBECCA BURGESS

Fibershed: *Growing a Movement of Farmers, Fashion Activists, and Makers for a New Textile Economy* was published in November of 2019 and has received some wonderful feedback from our community. We are excited to hear that the book will be utilized as a textbook in a growing number of design schools in 2020 and are pleased to see the initial response from people we dearly respect.



"From the living world around her, Burgess has stitched together the broken strands of textile arts, creating an economy of place where makers are artists and clothing is revered."

—PAUL HAWKEN



(Photo by Paige Green)

"Rebecca Burgess is the Alice Waters of the slow fiber movement. Within the pages of *Fibershed*, she proves that carefully clothing oneself is a revolutionary act. While many wait for distant corporations and governments to curb toxic, unethical, and extractive industrial practices, Burgess demonstrates that the revolution is at hand in our own backyards. *Fibershed* is required reading for any clothing company that claims environmental and ethical responsibility." – DAN MALLOY, SURFING AMBASSADOR, PATAGONIA; COFOUNDER, POCO FARM, OJAI, CA

"Burgess's well-researched book stokes a fire that has already been lit by many organizations collaborating and networking around the globe, and connects the dots between our clothing and our life-supporting environment. I would encourage everyone who wears clothes and has any concern for future generations to read this highly educational book." – ALLAN SAVORY, PRESIDENT AND COFOUNDER, SAVORY INSTITUTE

"Rebecca has made an incredible contribution to the slow fashion movement through her organizing and advocacy work with the *Fibershed* organization. I'm thrilled to know that this work is now available to a broader audience through this thoughtful book. May we all learn from her wisdom, research, and knowledge as we create even deeper connections between farms, fiber art, and fashion." – KATRINA RODABAUGH, AUTHOR OF *MENDING MATTERS*

"This is an important book. It is bold, practical, optimistic—a vision of how things must be." – KATE FLETCHER, PROFESSOR, CENTRE FOR SUSTAINABLE FASHION, UNIVERSITY OF THE ARTS, LONDON, UK

"*Fibershed* is a deeply informed exploration of the political ecology of clothing and an urgent invitation to a new way of being in the world; one that respects the soil, the cycles of the year, and life itself. In this visionary manifesto of hope, Rebecca Burgess chronicles a personal journey with profound global implications: Human economies need not result in the degradation of either human culture nor the environment, but might, if done well, lead to the enrichment of both." – JEFFREY CREQUE, PHD, DIRECTOR OF RANGELAND AND AGROECOSYSTEM MANAGEMENT, CARBON CYCLE INSTITUTE

"*Fibershed* is a must-read for all clothing brands, whether years into their sustainability journey or just at the beginning. Burgess encourages us to think deeply and holistically about the impacts of fashion, reconsider our industry's model of overconsumption, and to approach flashy biotech solutions with a critical eye. *Fibershed* proves that fashion can be a force for good, empowering farmers and makers while supporting local communities with Climate Beneficial textile supply chains." – MEGAN MEIKLEJOHN, SUSTAINABLE MATERIALS AND TRANSPARENCY MANAGER, EILEEN FISHER

"Collectively, we've been slowly waking up to the urgent need to farm our food in ways that restore and regenerate soils and whole landscapes; create connections between people, land, animals, and seasons; and rebuild local economies. *Fibershed* turns our attention to a parallel, equally urgent frontier: our clothes. We need this book, and we need it now." – NICOLETTE HAHN NIMAN, AUTHOR OF *DEFENDING BEEF*

“I made a pact with myself that I wouldn’t start on anything new for Yoke Handmade until I finished reading Rebecca Burgess’s new book, Fibershed. Once I started, I couldn’t put the book down; I felt unendingly intrigued and excited to read about her project, especially because it focuses on the fiber and textile system we have (and need) in Northern California. There are a lot of folks doing incredible work, which was enlightening to learn about. But, this path is hard and uphill and not “lucrative” in a financial sense. There is so much more to do.

“As someone who has always wanted to help create social and environmental change, making clothing has felt both rewarding and fraught with confusion. After reading Rebecca’s book, I am ever hopeful that I am in the right place. I endeavor to continue to make things that I feel proud of, that extend beyond fashion and into justice, and that help you to feel good about your choices in this wonderful world. Thank you to Rebecca Burgess for bringing it all into one place. I strongly recommend this book to anyone who is interested in textiles, environment, farming, and/or social justice.”

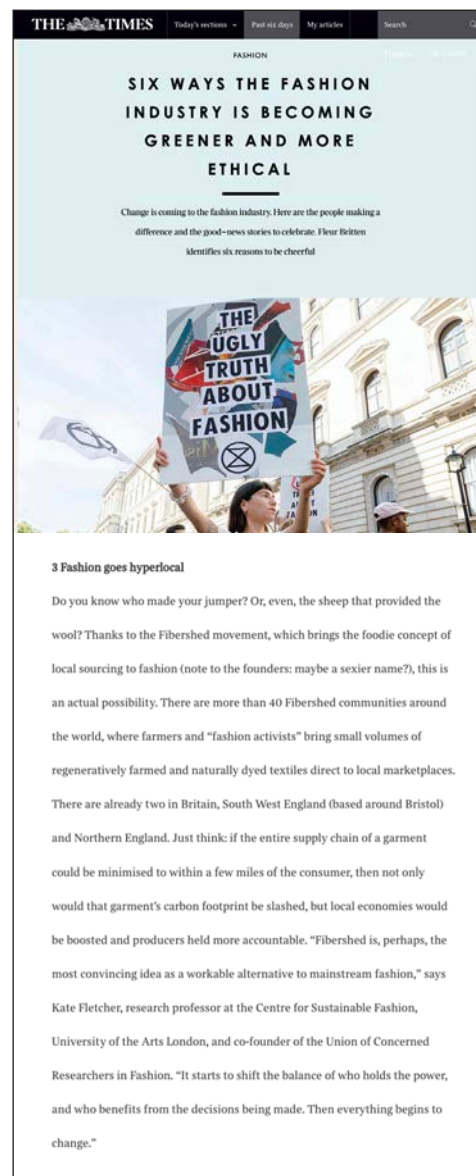
– OWNER OF YOKE HANDMADE, SLOWLY MADE CLOTHING



- **Impakter:** KRUSing into the future with a local angle for fashion – November 2019
- **Resilience:** Fibershed: Growing a Movement of Farmers, Fashion Activists, and Makers for a New Textile Economy: Excerpt – November 2019
- **Modern Farmer:** An Activists Farm to Closet Journey – November 2019
- **Moms Across America:** WHAT DO CLOTHES HAVE TO DO WITH AGRICULTURE? – November 2019
- **Yes! Magazine:** Building a Textile Economy, except from the Fibershed book – November 2019
- **The Revelator:** How to Make ‘Farm-to-closet’ Clothing a Reality – November 2019
- **Vogue Business:** Startups are developing plant-based alternatives to silk – November 2019
- **The Sunday Times:** Six Ways the Fashion Industry is Becoming Greener and More Ethical – October 2019

Selected Press

- **Oakland North:** Donated and forgotten: The problem with second-hand clothes – December 2019
- **Taproot Magazine, Issue 36** WEAR: Who Grew My Clothes? – November 2019
- **Organic Spa Magazine:** Slow it down: Fibershed puts the brakes on fast fashion – November 2019



- **Reading My Tea Leaves:** Growing a Minimalist Wardrobe: Repair a Wool Sweater – October 2019
- **Corvalis Advocate:** Sustainable Linen Movement: Revitalizing Flax & Hemp – October 2019
- **Fashionista:** Fibershed Offers an Alternative Vision for the Future of the Fashion Industry – October 2019
- **The Craftsmanship Initiative:** Sustainable Fashion, Hands-on Education: a Fibershed Gala – October 2019
- **Fashionista:** Sheep Inc. Intends to Be the World’s First ‘Carbon Negative’ Fashion Brand – October 2019

MANUFACTURING

From Farm to Factory, Fibershed Pushes the Industry Toward Responsible Fiber Sourcing

By Dorothy Gersch Managing Editor

After nine years of promoting a local apparel supply chain, through which all sourcing is no farther than 150 miles from a project's headquarters, Fibershed founder Rebecca Burgess has become devoted to showing clothing makers how to create a more responsible product. By connecting ranchers, mills, designers, sewers and brands, Fibershed serves as the agent that brings together like-minded apparel workers. With its fifth Fibershed Gala taking place Sept. 28 in Petaluma, Calif., Burgess has begun to reflect on the evolution of her organization.

"We have historically focused the event on a celebration of regional textile culture as expressed through a new textile that we have grown ourselves and created within our region," she said. "In 2013, we paired farmers with different artisans. Through their one-on-one collaborations, they created a garment, and it was styled into an outfit that was featured during a runway show."

While Fibershed has moved away from the runway show, it will still showcase designs in ecologically sound clothing on a more social level. With representatives from large industry players such as Stella McCartney in attendance, the local-fashion pioneer that promotes shortening the supply chain has a big voice. "We want to change the mainstream existing supply chain, wherever they may be," Burgess explained. "One tool in the toolkit is amending the existing institution and its existing supply chain. Another is to build something totally new. Both can coexist at the moment. The brittleness of the existing system's monoculture nature can be too heavily disrupted by climate change alone."

Finding local fiber sources

The disruption to which Burgess refers is part of the organization's mission to change the beginning of the supply chain, where ranchers cultivate resources to manufacture the fibers that will be processed, spun, sewn and, eventually,



The North Face Backyard Project hoodie



The North Face Fall 2019 Call Wool jacket



Zero-waste Youngsuit by Italia Hannonway

turned into clothing. Through practices that reduce the carbon in the atmosphere such as growing crops cultivated with compost comprising biodegradable materials—those used to create the most sustainable clothing—the apparel industry can become cleaner. One of the by-products of carbon farming is climate-beneficial wool, which yields a fiber from sheep who graze on land that relies on soil that is nourished by composted materials. According to Fibershed, the negative carbon impact reduces CO₂ by 150 pounds per garment. Burgess helps local ranchers such as Lani Estill, owner of Lani's Lane and co-owner of Bare Ranch, located on the border of Nevada and California, south of Elyville, Calif., to implement carbon-farming practices and connects them to brands that are

exploring a more responsible supply chain. "They [Fibershed] came up and looked at our ranch and our sheep and our wool, and we decided to do a carbon farm plan with them," said Estill. "They connected me with The North Face, who is currently one of my largest buyers of the wool product and also Coyuchi, which is a Bay Area company I work closely with."

Through establishing a partnership with then-Alameda, Calif.-based The North Face, Estill was able to produce at a larger level. As her business grows through partnerships with major brands that are exploring more-sustainable sourcing, Estill is able to work with smaller operations, which contributes to the growth of these independent businesses.



Startups are developing plant-based alternatives to silk

BY RACHEL GERSHBERG

Designers are experimenting with plant and plant-based substitutes as silk's environmental impact comes under the spotlight.

in | | | |

Synthetic spider silk garners buzz

San Francisco-based Bolt Threads manufactures synthetic spider silk that claims to be identical to the Kevlar-strength fiber with which spiders weave their webs. Made from fermented yeast, the material has appeared in several Stella McCartney designs, including a yellow knit dress exhibited at the MoMA in 2017, as well as Bolt Threads's brand of ties. Priced at \$314, a limited run of 50 promptly sold out in 2017.

Despite industry enthusiasm, some critics are concerned about Bolt Threads's use of biotechnology. Fibershed, a California nonprofit that promotes regional textile and clothing production, published a report last year detailing concerns about the adverse impacts of genetically engineered materials on fragile ecosystems and farmers' livelihoods, including the potential to introduce new types of toxins and contaminants into soil and waterways.

FASHIONISTA

NEWS BUSINESS STYLE BEAUTY SHOPPING CAREERS FASH

HOME > BUSINESS

FIBERSHED OFFERS AN ALTERNATIVE VISION FOR THE FUTURE OF THE FASHION INDUSTRY

For those more interested in preserving life on Earth than in setting up camp in a new corner of the galaxy.

WHITNEY BAUCK · UPDATED: OCT 15, 2019 · ORIGINAL: OCT 15, 2019

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A natural dye workshop at the 2019 Fibershed Gala. Photo: Paige Green Photography

In the '60s, designers like Pierre Cardin and André Courrèges created Space Age garb that defined what people thought "futuristic fashion" looked like for decades. But what if the truth is that the future of fashion actually looks a bit more like the past?

Meeting the researchers, designers, advocates, farmers and artisans who are drawn together by California-based non-profit Fibershed means seeing this vision in action. The clothing they wear is no less influenced by scientific discovery than the iconic designs of the '60s were. But the Fibershed community is more interested in preserving dignified life on our warming home planet than they are in setting up camp in a new corner of the galaxy. As a result,

Why Genetically Engineered Foods Have Some Scientists Nervous About the Future – May 2019

- *Kiss the Ground*: How to Love the Soil Through Your Fashion Choices – April 2019
- Fashionista: Fashionista's Complete Beginner's Guide to Ethical Fashion Certifications – April 2019
- *Sourcing Journal*: Promising or Problematic? Agri-Waste Fibers Emerge as an Eco Alternative – April 2019
- *Vogue Business*: The 'buy local' movement comes to fashion – April 2019
- *Fast Company*: We have to fix fashion if we want to survive the climate crisis – March 2019
- *Sourcing Journal*: New Farm Bill Could Represent New High for Hemp Textiles – January 2019

For hyperlinks to these and other stories, visit our Press page: fibershed.com/about/press/

- *California Apparel News*: From Farm to Factory, Fibershed Pushes the Industry Toward Responsible Fiber Sourcing – September 2019
- *CSU Chico CRAS Blog*: How Regenerative Agriculture Could Help Clean Up the Fashion Industry – September 2019
- *Jefferson Public Radio*: Slower Fashion, Smaller Footprint: Fibershed – June 2019
- Positive News: Moral fibre: the story of Bristol Cloth (Fibershed Affiliate, South West England Fibreshed) – June 2019
- *EcoTextile News*: Fibershed publishes sustainable fashion guide – June 2019
- *Fashionista*: Do We Really Need Any More Sustainable Fashion Brands? – June 2019
- *Sustainable Fashion Alliance*: Loved Clothes Last Mending Bar – May 2019
- *Civil Eats*: Synthetic Biology is Changing What We Eat: Here's What You Need to Know; also on Eater:

Events

BY JESS DANIELS

COMPLETED:

- Designed and organized *Moving the Needle: Local Supply Chains + Soil-to-Skin Materials* with the Sustainable Fashion Alliance, featuring a panel discussion, robust networking, and critical feedback for Huston Textile Company
- Analyzed data and provided a summary report for Huston Textile Company from 23 designer and fashion industry surveys completed at *Moving the Needle*
- Created exhibition installation to represent soil to skin material prototypes in the international *Don't Feed the Monster* gallery show on rethinking material consumption and use
- Hosted a one-day Symposium with seventeen speakers across three panels and three keynote talks
- Hosted 39 Fibershed producers to vend and demonstrate their skills and wares at the Fibershed Marketplace
- Delivered original content to over 200 in-person attendees and live-streamed our conference to Fibershed Affiliates and general public audience members (bit.ly/19WoolSymposium)
- Created and disseminated Symposium Marketplace marketing campaign including print materials and shareable social media graphics for partner and network promotion
- Developed and distributed Symposium Marketplace best practices tips and guidance for producer vendors to enhance booth and product displays and customer experience
- Executed a post-Symposium digital survey to solicit attendee feedback to refine event functionality and offerings

EXPERIENTIAL EVENTS that merge tactile and intellectual learning are a cornerstone of Fibershed's work. From the annual Wool & Fine Fiber Symposium to the audience and site-specific events, Fibershed worked throughout 2019 to organize and collaborate on opportunities to bring soil-to-soil material culture to life with in-person engagement.

In October, Fibershed co-hosted an event with the Sustainable Fashion Alliance to daylight local production from soil to skin. "Moving the Needle: Local Supply Chains + Soil-to-Skin Materials" included a panel discussion, interactive data collection exercise for feedback on Huston Textile Company chambray colorways, and networking time for a packed house of over 50 attendees.



Fibershed's "Moving the Needle" event in Oakland highlighted soil to skin perspectives on local production from (left to right) Taylor Jay, Lydia Wendt, Ryan Huston, and Rebecca Burgess (moderated by Andrea Plell, far left), and provided an opportunity for hands-on feedback from the design community with a survey of chambray color preferences introduced by Dan DiSanto. (Photos by Jess Daniels)



"Wondering what this buzz about 'regenerative agriculture' means? Fibershed puts it into context"

– KASI MARTIN, CREATOR OF THE ETHICAL FASHION BLOG
THE PEAHEN, ATTENDEE OF "MOVING THE NEEDLE"
ON OCTOBER 24, 2019



Carla Stout, a Fashion Consultant who attended “Moving the Needle” shared these illustrated take-aways from the evening.

“The quality of this [Huston Textile Company] fabric is golden! I will be recommending this company to my US clients 100%”

– CARLA STOUT,
FASHION CONSULTANT IN GARMENT
DESIGN AND DEVELOPMENT,
SUSTAINABLE FASHION
PRACTICES AND RESEARCH

Participants in the evening represented 14 different brands from independent labels to global companies, technical designers and sourcing consultants, investors, and sustainable fashion advocates, who shared excellent feedback on the dynamic program. The panel discussion flowed from soil to skin with honest responses about the challenges and connections of local production from Lydia Wendt of California Cloth Foundry, Ryan Huston of Huston Textile Company, Rebecca Burgess, and Taylor Jay of Taylor Jay Collection, which was also the location of the event. A guided data collection exercise followed, with attendees completing 23 surveys that were directly fed into Huston Textile Company production analysis.

This fall and winter, Fibershed was highlighted in Oslo, Norway, at the Don’t Feed the Monster exhibition on how the clothing industry affects the environment. Tactile samples from the Northern California Fibershed were showcased alongside imagery and narrative documentation of the Grow Your Jeans and Kentucky Cloth prototypes, highlighting the role of homegrown and regional textile solutions alongside the necessary reductions and reimaginings of consumerism. Two hundred copies of the Fibershed Clothing Guide also made their way to Oslo for the exhibit and were distributed to the general public and to designers.



“The exhibition puts a spotlight on the situation as it is today, and the works presented both engage and provoke for change. The twelve participating designers and artists share their ideas, methods and alternative stories through visual narratives, concrete design solutions, activism, development of new technologies and renewed use of resources as well as cultural history surveys. Always with a fixed look at the acute.”

– CURATORS MARIA C. HAVSTAM AND FRANZ P. SCHMIDT



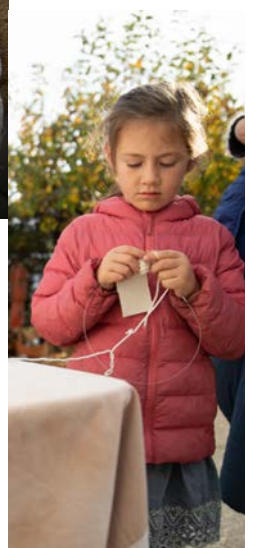
Don’t Feed the Monster exhibition in Oslo, Norway (Photo at top by Vegard Kleven © Galleri F 15; photo at right by Ingeborg Øien Thorlsand © Galleri F 15)

2019 Wool & Fine Fiber Symposium

BY REBECCA BURGESS

WE HOSTED our 8th Annual Wool & Fine Fiber Symposium on November 16th within the theme “Partnerships that Elevate.” The event provided a platform to host presenters who shared stories about working together to regenerate landscapes and the connections that humans have with these landscapes. We also provided space to presenters who are keen on establishing healthy partnerships across racial and socio-economic divides—and who focused their presentations on the historical context for why our textile system is where it is today. Local colleges who are actively collaborating with Fibershed both materially and conceptually hosted tables to display their student’s work and over 29 farmers, ranchers, and designers working with our regional materials took part in this year’s marketplace.

Keynote presenters at this year’s symposium included molecular biologist Dr. David Johnson, who presented on the dynamic relationships between microbial and fungal communities that occur underground and how we can partner with micro-organisms to heal our soil and our climate. We heard from Melanin & Sustainable Style Founder, Dominique Drakeford, whose presentation, “The Root of Exploitation in American Land Use,” included a deep dive into AIRE = agency, inclusion, representation, and equity. Drakeford also illuminated the history of regenerative agriculture through a clearer eyed perception of the contributions of George Washington Carver, Booker T. Washington, and Fannie Lou Hammer. We heard from Southern Sierra Miwuk tribal member, Irene Angel Vasquez, on how we can engage the Department of the Interior through a letter-writing campaign to support her tribe’s need for federal recognition that would provide the tribe legal access to their traditional harvesting grounds.



Top left and above, Fibershed community members offer tactile engagement with regional fibers and dyes, including an angora rabbit shearing demonstration by Erin Maclean of Bungalow Farm Angora, and natural dye work by students in Santa Rosa Junior College’s design program.

Top right, The public learns to mend in the outdoor demonstrations at this year’s Symposium. Right, Knitting opportunities with our region’s wool were provided to all ages.



Grace Harris hosts a free ecological printing workshop at the Symposium for the general public. (Photos by Paige Green)

“This was my third Wool Symposium and every year I learn so much. This year’s highlights were Dominique Drakeford who opened many eyes, ears and hearts to history and how politics has always played a part in fiber production and economics; and Marcaill McWilliams who spoke the raw truth when she said she hopes someday she will run her mill instead of it running her. The Wool Symposium is also my favorite shopping destination and this year I bought a rainbow of naturally dyed yarn from Red Creek Farm and a hat kit from Meridian Jacobs.”

– HELEN FERLINO, SYMPOSIUM ATTENDEE



Panel presenters on our first panel gathered to discuss “Land Based Partnerships that Elevate”—this included presentations that spanned the cotton growing landscapes of the San Joaquin Valley to the urban gardens in the city of Richmond, California. Our second panel of the day focused on “Partnerships that Elevate Land Based Aesthetics.” It included stories from farmers, artists, and designers who are working together to generate plant based color palettes and organic and Climate Beneficial textiles.

The Symposium marketplace and demonstrations were open all day and offered freely to the public. All the videos from the Wool Symposium presentations are available on the 2019 Wool Symposium website (bit.ly/19WoolSymposium).

Top left, Dominique Drakeford presents her keynote, ‘The Root of Exploitation in American Land Use.’ Top right, audience members of the Symposium listen to a panel on “Partnerships that Elevate Land Based Aesthetics,” moderated by Stephany Wilkes.

Above, Judi Pettite presents on her indigo collaboration with PT Ranch that included farming, pigment extraction and a class for the public.

Right, Janice Paredes the Department Coordinator for Fashion Design and Product Development for the Fashion Institute of Design and Merchandising shares information on the student’s work to design zero-fallout patterns with Fibershed’s Community Supported Cloth. (Photos by Paige Green)



Design School Collaborations

BY HEATHER PODOLL
AND REBECCA BURGESS

COMPLETED:

- Developed and delivered 15-week accredited undergraduate course at California College of the Arts (CCA) for the Critical Studies Department entitled: Global Carbon-Local Fiber
- Facilitated Local Fiber Incubator course offered to graduate students of multiple disciplines at CCA
- Honored 3 Fashion Institute of Design and Merchandising (FIDM) students in the FIDM Fibershed Design Challenge, with original work displayed and modeled in the Student Design Showcase at the Fibershed Gala
- Delivered presentations by Fibershed staff to three individual classes at FIDM, in addition to a presentation and panel moderation for a whole-school Symposium on Responsible Design, and participation in two student portfolio presentation days
- Reviewed 25 new zero waste garment designs submitted as entries for the Fibershed Design Challenge by FIDM Fashion Design students
- Supported students and faculty from two design schools, SRJC and FIDM, to display and discuss their work with regional textile materials and dyes at the Fibershed Symposium
- Oversaw high school intern who created and documented two sustainable fashion events for teens and five self-produced educational videos about the impacts of fashion and clothing choices

ONGOING COLLABORATIONS with students and faculty in three regional design schools provide a rich introduction for design students to regional textile materials sourcing and supply chains. Students also gain an understanding of how a soil-to-



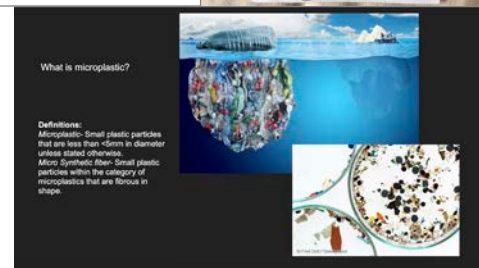
soil approach to textile design is both urgently needed and possible.

CCA

Fibershed's Executive Director taught a 15-week accredited undergraduate course at California College of the Arts for the Critical Studies Department entitled: Global Carbon-Local Fiber, as well as facilitated a second course called the Local Fiber Incubator that was offered to graduate students of multiple disciplines including architecture, fashion, graphic design, and industrial design. Both courses were based on the creation of a novel curriculum providing quantifiable intersections between climate justice, ocean health, regional economic development, and localized fashion systems. The content was developed through assigned readings, lectures, weekly discussions, and was augmented by visiting speakers including biogeochemists, rangeland ecologists, microbiologists, and social justice activists.

FIDM

The year at the Fashion Institute of Design and Merchandising (FIDM)-San Francisco opened with Fibershed staff moderating and presenting at the first FIDM Responsible Design Symposium, attended by all students. A deepening commitment by faculty and administrators at FIDM to engaging their students with opportunities and understanding about the regional fiber system and community continued through a very successful year of the FIDM Fibershed Design Challenge.



Student work from the Global Carbon-Local Fiber course at CCA taught by Rebecca Burgess, showing themes of textile fiber sourcing and impacts.

Three students completing the challenge were honored in the Fibershed Gala's Student Designer Showcase, where their original garments were displayed and modeled. One of the FIDM Honorees, Italia Hannaway, launched an independent clothing line in 2019, Italia A Collection, based on her original Zero Waste loungesuit created for the Fibershed Design Challenge. Featuring regionally sourced, Climate Beneficial fabrics woven at Huston Textile Company, Italia's clothing line has received attention and honors at a number of fashion and design events this year, including San Francisco Sustainable Fashion Week and an event for the United Nations hosted at Apple, Inc. This fall and winter, 25 new zero waste garment designs were submitted as entries for the Fibershed Design Challenge by FIDM students.

SRJC

Santa Rosa Junior College (SRJC)'s Fashion Studies Program has included an emphasis on natural fibers, regional sourcing of textiles and dyes,



Above, FIDM Fashion Design student Cortney Sumpter's portfolio presentation included prototype cotton garments colored with natural dyes sourced from her family's farm in Dos Palos, CA. The Tie Wrap garment is a zero waste pattern designed for the Fibershed Design Challenge. (Photo by Heather Podoll)

Above right, Designer Dan DiSanto shared his industry experience in Zero Waste pattern design with FIDM students preparing for the Fibershed Design Challenge. At the Fibershed Gala, he discusses the outcome of her work with FIDM graduate Mika Negrete. (Photo by Paige Green)

"Thank you for providing an opportunity to be creative using local and natural materials... This project is close to my heart and I am grateful to be a part of Fibershed's mission."

– CORTNEY SUMPTER
FIDM FIBERSHED
DESIGN CHALLENGE HONOREE



Right, FIDM alumus and Fibershed Design Challenge Honoree Italia Hannaway launched an independent clothing line, Italia A Collection, in 2019, featuring regionally sourced Lani's Lana Climate Beneficial wool fabrics woven at Huston Textile Company, Italia A Collection's zero waste pattern garments in Climate Beneficial Wool shown at San Francisco Fashion Week for Sustainable Designers (Photos courtesy of Italia A Collection)

and innovative natural dye surface techniques in their courses. Due to a partnership between SRJC's Shone Farm and Fibershed indigo producer Craig Wilkinson, students were able to access a blue indigo dye sourced from their very own school campus. SRJC Fashion Design Program students were involved with several Fibershed events this year, including faculty and students who displayed and discussed samples of locally dyed and Fibershed-sourced prototype garments with attendees at the Fibershed Symposium, participated in the "Loved Clothes Last" mending bar, and also attended the Fibershed Gala as a vendor and as participants.

HIGH SCHOOLS

Fibershed staff delivered presentations to several groups of high school students this year, noted in this report's list of presentations. Additionally, Fibershed was fortunate to have a student intern from Sir Francis Drake High School who created and documented a series of events and educational videos for her teen peers, focused on the impacts of fashion and clothing choices. Intern Zoe Vavrek organized a film screening, clothing swap, and re-designer's workshop featuring natural dyes used to revitalize used clothing. Her videos and events are documented in the teen fashion website she created. (fibershedteenhub.wixsite.com/mysite)



Above, Fashion Studies Program students from Santa Rosa Junior College share their work with natural dyes and surface design on Fibershed Climate Beneficial wool cloth at the Wool Symposium. (Photo by Paige Green)



“This was my first Fibershed Gala so I didn’t know what to expect, but I walked away with a deeper connection to the community, environment, and indigenous culture. There were so many unique memories from the day that it’s hard to pick a favorite moment. I loved flitting between the marketplace vendors and learning about the Climate Beneficial goods that they brought to the gala, and I’ll admit that I bought more locally produced clothes than I had intended to buy!”

“The “zero waste” fashion show opened my eyes to not only the fact that a significant amount of fabric is wasted during the production of most commercial clothing, but that it’s possible to design clothing in a way that minimizes or negates this waste completely. I also learned about painting with natural dyes, and how to repair my clothing using sashiko mending, which I’ve always wanted to see in action. And to cap it off, it was inspiring to see some beautiful dance performances by multiple generations of Native American tribes. I’m looking forward to future galas, because I feel like I’m just starting to learn what is possible when a community comes together to regenerate the land and the environment, and to revive practices that are important for who we are as people.”

– STAFFORD DEAN, GALA ATTENDEE



Fibershed Gala

BY REBECCA BURGESS

ON SEPTEMBER 28TH of this year, we hosted our biennial Gala for 250 people at Sally and Mike Gale’s ranch (mikeandsallygalebeefranch.com) in the Chileno Valley designed around the theme “The Practice of Belonging.” This year’s Gala activities were informed by listening sessions with community members, conversations with staff, reviews of the latest report issued from the Intergovernmental Panel on climate change, *Special Report: Climate Change and Land* (ipcc.ch/srccl), and observations of social responses to climate change that grew to historic levels in 2019.

All that taken into account, we took measures this year to enhance the hands-on and sensory rich nature of our event through skill building, live music,

and a host of complimentary activities. We created opportunities to highlight the accomplishments of next-generation designers, we continued our tradition of offering a locally grown meal, prepared by our region’s farmers and ranchers and we continued to host a home-grown marketplace for hides, yarns, woven textiles and finished goods grown within our region. We launched a knit-along to continue to grow the connections between our endemic fibers and the community of makers. We collaborated with Dancing Earth (dancingearth.org) and Teju Adisa-Farrar to bring the first ever poetry and dance elements to the community through one of our events, and we invited thoughtful journalist partners to help tell the story (fashionista.com/2019/10/fibershed-carbon-farming).

Outside of the unseasonably high winds (35-40 mph), that we experienced (which dampened our ability to fully showcase all of the aspects of the event that we’d organized and planned for), the community rallied and supported one another to create a beautiful afternoon and evening that filled our hearts and inspired our souls tremendously.



Dancing Earth Indigenous Contemporary Dance Theater has been honored with invitations around the world, to interpret cultural-ecological themes important to intergenerational community leaders. The dancers shared their appreciation for bringing their dances to Pomo lands, in celebration of the powerful regenerative vision of Fibershed. (Photos by Paige Green)



Teju Adisa-Farrar is a Jamaican-American writer, geographer and poet, and she created this original poem for The Practice of Belonging.

IN/VISIBLE HANDS

BY TEJU ADISA-FARRAR

I was told it was invisible hands
Pushing needles through fibers picked by humans
whose lives were and are seen as disposable
Pulling the thread towards liberation
Hoping to stitch a better future for their children
Not the children who will perish in the same position as them
But their children's children's children
who will hopefully emerge wounded, but free from this
current system

Cotton is not innocent,
and neither is fashion

We are extracting resources, labor and culture
Oil permanently soaking the underside of fingernails
that will never
consume even 1/10th of the products their work produces

The world is infinite, but we are not
In fact, we are very finite creatures
Living only seconds from our mere destruction
But for Black life, the reality of premature death has always
been apart of our consciousness

See, 200 years ago we were picking sugar, coffee, and cotton
Now Black bodies drown crossing the Mediterranean
and the ocean
This extraction has caused patterns of migration
that are far older than your vintage denim

In prison, they make our license plates and used to make
the sneakers called Jordans
While Michael Jordan is making multi-millions, Jordan's
were made in prisons
by boys, now men, who probably waited in line to buy those
same shoes to feel a sense of value
they thought the sneakers would make them feel important
When your life is not valued, you look for value in
consumption

I read it was invisible hands who allowed me to lead the
life I live
But these people are not invisible, they are overlooked

we, the people, the least evolved species on this planet
taking up more space than we can honor in this moment
we have an opportunity to refashion our existence
I mean redistribute our ignorance into resilience
I mean reimagine sustainable futures, expand our
consciousness
I mean, we, the people, are only a few steps away from
liberation

We, the people, here and now can wipe the tears of the next
generation
If only we realize that the earth has been here,
we are just a tiny instant in the universe
It's humbling

From the cliffs of privilege
it may seem like fashion is separate from violence
all of our consumption stems from the same system
but luckily, we can change this

we must grab these visible invisible hands, not hiding
but working in plain sight
we must grab hold of each other, not dominating
but working collectively towards freedom

we are not each other's enemies or rivals
we are each other, literally, and there is
No separate survival

As we walk through this world
Clothed in the tethers of society
We must remember that every single fiber
is connected to a lineage and a story

my ancestors all across the Americas
from the Southern United States to Jamaica
picked, labored, and toiled the soil
So that I, and you and you and you - can live in a global world
and have important intellectual feelings
So now I, and you and you and you - have to honor their
presence
and their wisdom
with our choices and the fight towards freedom

I am cut from a different cloth
a quilt of resistance
made colorful by the plants naturally growing from the dirt
I am the hemp seed 10,000 years ago
I am because they were
I am because we are
From the minerals in the loam to the threads in my clothes,
together we can lead the way like Harriet Tubman did with
the North Star

Only together.



Celebrating Young Designers: three of San Francisco's Fashion Institute of Design and Merchandising students worked with our Climate Beneficial Community Supported Cloth (grown at Lani Estill's ranch and woven by Huston Textile Company) for the design of clothing that generates no waste in the sewing process—also known as zero fallout design.



Oakland-based Kitka (kitka.org) performed traditional songs from the Balkans, Caucasus and Slavic landscapes. Rebecca Richman and Connor Maguire played a blend of traditional fiddle music from the Celtic old-time American traditions. Foods were prepared by Isa Jacoby and Guido Frosini. (All Gala photos by Paige Green)



The Marketplace represented 14 artisan and farmer members of Fibershed's producer program.



Six skill sharing gathering areas were organized with guest teachers Liz Spencer, Teju Adisa-Farrar, Michelle Wilson, Grace Harris, Ashley Eva Brock, and Cory Gunter Brown. Participants mended, made paper, tried their hand at eco-printing, learned about plant-based pigments and how to use them on a textile, and shared stories about our textile culture. (All Gala photos by Paige Green)

COMPLETED:

- Welcomed 8 new Fibershed Affiliates from communities around the world
- Facilitated and shared 5 webinars presenting learnings and outcomes from the 2018 Fibershed Affiliate Micro-grant seed funding projects
- Awarded 7 Fibershed Affiliate Micro-grants and distributed \$24,594
- Hosted 4 virtual meet-ups sharing topical and leadership development skills
- Supported 6 Fibershed Affiliate communities in advancing regional Climate Beneficial pipelines from soil sampling in the Rust Belt Fibershed to carbon farming practice implementation in the Southeastern New England Fibershed, field walks in Fibershed Melbourne and field trials in Prakriti Fibershed, to verified Climate Beneficial products launched in New York in partnership with Textile Lab
- Facilitated the launch of new members websites and and producer directories expanded using the Fibershed Affiliate Web Template and ongoing, collective support by Facta Studio
- Updated the Fibershed Affiliate global membership directory for grassroots connectivity
- Developed new membership forms and parameters to launch in 2020

“I really enjoyed those [virtual hangout] sessions: found them to be both inspirational and educational.”

– LESLEY ROBERTS, SOUTHERN CALIFORNIA FIBERSHED
FOUNDER AND ORGANIZER



Fibershed Affiliate Network

BY JESS DANIELS

FIBERSHED'S AFFILIATES are an extended network that fosters education and connection between our local Northern California Fibershed Producers and talented leaders and producers from around the world working to build regional, regenerative fiber systems.



Geographic clusters of Fibershed Affiliates are emerging, and this year several groups hosted regional meetups and Symposia. Above: Fibershed organizers spanning from New York to New Hampshire joined together for meet-up in Western Mass (with Affiliate Director Jess Daniels on video chat); upper right: in Ohio, the Dayton Fibershed hosted a Symposium with presentations by the Rust Belt Fibershed; lower right: the South East England Fibershed hosted a meet-up and Fibershed book launch party with guests from the South West England Fibershed.

Membership Coordination, Resource & Strategy Development

WE LIKE TO SAY that “little ‘f’ fibershed” is a word available as an open-source organizing concept available to place-based communities everywhere. In 2019, we saw an enlivening uptick in interest from folks near and far seeking to join the global grassroots network of those shaping and strengthening in their fibershed. In addition to individual orientation conversations with the eight new members, the Fibershed Affiliate Network serves as fertile ground for growing regional, regenerative fiber systems. From the private chat forum hosted and moderated by Fibershed to the social media connectivity amongst Fibershed Affiliates to the virtual hangouts we facilitated this year, Fibershed Affiliates are growing momentum. Affiliates grow by swapping ideas, sharing seeds, reaching out for resources, and offering a wealth of knowledge and perspective.



NEW MEMBERS:

- Central Appalachia Fibershed
- Southeast England Fibreshed
- Prakriti Fibershed
- Southern California Fibershed
- White Mountain Fibershed
- NJ Fibershed
- Southwest Montana Fibershed
- LocalFiber NY

Virtual hangouts, hosted on the Zoom video platform, have been a rewarding way to support the richness of this cross-pollination. Because the majority of Fibershed Affiliate organizers are “wearing many hats” and bootstrapping most of their organizing efforts, we re-evaluated the idea for an Affiliate Advisory Committee and instead structured regular hangouts as a way to hear updates, guide projects, and better understand the needs and capacity of the Fibershed Affiliate Network. The hangouts have had higher turnout rates than webinars and thus also provided a better platform for both topical education and leadership development, including:

- Fundraising – Fibershed Affiliate micro-grants, project formation, and seeking small to medium scale community grants
- Carbon Farming and Climate Beneficial™ programs
- Diversity, Inclusion, Equity, and Connecting with Local Indigenous Communities

Fibershed communities are growing Climate Beneficial programs, too, from networking with producers to soil sampling to supporting practice implementation and developing supply chains. The Fibershed Affiliate Program directly supports this work by connecting organizers to climate science, explaining the pipeline and practice-based verification model, clarifying labeling and product requirements, and providing ongoing consultation throughout the process.



Through the Fibershed Affiliate Program, member organization New York Textile Lab has piloted a Climate Beneficial program from soil to skin, including working with partners to develop Carbon Farm Plans and working with local supply chains to create Climate Beneficial verified goods and garments that launched at holiday markets in late 2019.



“Everything is sourced and manufactured locally within 300 miles of NYC. Our alpaca farms are signed on to Carbon Farm Plans, which means the cultivation of their fiber is drawing down carbon from our biosphere into the soil and helping to mitigate the effects of climate change. By implementing the proposed Carbon Farm Plans our farms are sequestering 254 metric tons of CO₂ a year. This means our farms are able to offset the emissions for a single person flying economy 159 times from London to NY (a one way trip puts 1.6 metric tons of CO₂ into the atmosphere). The alpaca fiber in our yarn is verified climate beneficial through our affiliate organization Fibershed... thank you for designing and sharing your climate beneficial ‘graphic token’ to help us make carbon farming practices visible when we sell our textile products.”



– LAURA SANSONE
@NYTEXTILELAB ON INSTAGRAM



The 2019 Fibershed Affiliate Micro-grant request for proposals received nine submissions for projects, and after careful consideration, seven projects were awarded for a total of \$24,594 funding distributed to the following:

- Prakriti Fibershed: “Prakriti Fibershed” [modeling sustainable cotton farming in Tamil Nadu, India]
- Southern Appalachia Fibershed: “Funding Proposal for Collaborative Fashion Showcase”
- Rust Belt Fibershed: “Mapping a Plentiful Resource to Bolster Local, Regenerative Alpaca Fiber Production, Usage, and Community”
- CT Fibershed: “Growing Our Community”
- Three Rivers Fibershed: “Creating Connections: A Three Rivers Fibershed Regional Fiber Sourcebook”
- Acadiana Fibershed: “Next Steps: Field to Fashion in Acadiana - Acadian Brown Cotton”
- Southern California Fibershed: “Regenerate. Reimagine. Reinvigorate: A Path Forward for the Southern California Fibershed”

Micro-grants Seed Funding

THE SEED FUNDING provided by Fibershed through “micro grants” continues to nourish the Fibershed Affiliate Network, and this year several previously-funded projects continued forward into evolving local economic and creative development efforts. The Western Massachusetts Fibershed provided yardage of 100% regional wool cloth, funded through a 2018 micro-grant, to local designers and artisans, and celebrated the collaborations with an exhibition called FIBERSHED: Woven Together (hitchcockcenter.org/event/fibershed-woven-together-opening-reception) at the Hitchcock Center for the Environment at Hampshire College (above right). The Upper Canada Fibershed 2018 micro-grant project also spurred farmer-maker collaborations, and as of winter 2019, the project kits and finished goods are being offered and shared online (above).



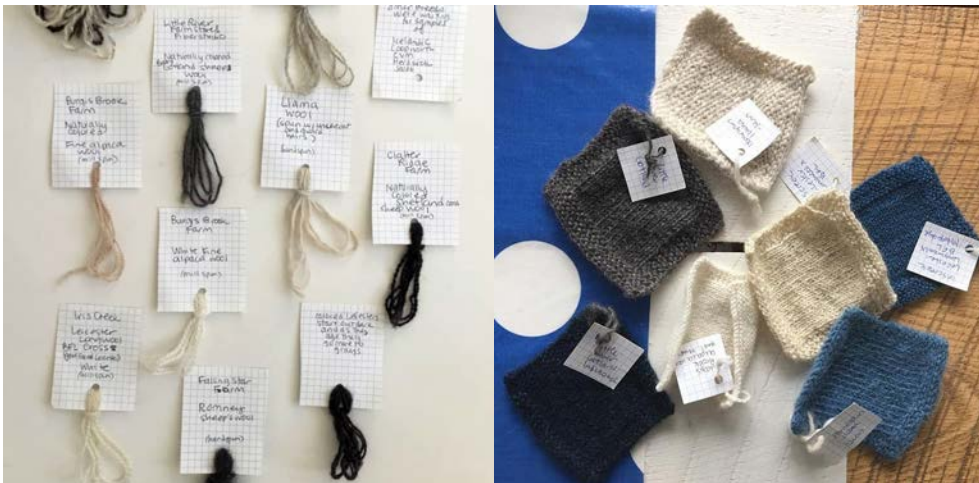
The Southern Appalachia Fibershed held its Collaborative Fashion Showcase on October 5th, 2019, funded in part by a Fibershed Affiliate micro-grant and hosted at the Nashville Food Project. “Almost 20 looks were shown, highlighting over a dozen designers + makers. Each one was created from grassroots collaborations, born from potluck dinners, fiber shows, random email inquiries, and beyond... Each piece was made with its impact on the planet in mind. Whether homegrown, naturally dyed, repurposed, or refashioned, each piece had a common virtue of creating with materials that are locally sourced and consciously curated... The evening was nothing short of magic. It would not have been possible without at least a dozen and a half unsung heroes, who seamlessly worked together to pull off a truly community-focused event that highlighted over a dozen local mills, makers, + designers.” – Kacie Hodges; read more on the Southern Appalachia Fibershed blog (safibershed.com/blog/2019/10/21/10519-collaborative-fashion-showcase)



Acadiana Fibershed is focused on reviving a socio-cultural and ecologically specific colored cotton, Acadian Brown Cotton. Their 2019 micro-grant is funding tools to share amongst growers and processors, and support for “Convening a Round Table of university leaders in the organic field, state level agriculture decision-makers, and farmers will open dialogue to explore alternatives to current obstacles for organic cotton certification.” The Round Table will contribute to a grower’s guide document and advance the project’s “field to fashion” goals, which the micro-grant is supporting with funding for yarn development. (Photos courtesy of Sharon Donnan)



In Minnesota, the Three Rivers Fibershed (TRF) is building off producer and economic development needs identified through their 2017 Micro-Grant awarded project. The 2019 funded project revolves around a material sourcebook as a means to “provide to the producers within TRF niche market consultation and group education opportunities to assist with individual branding, marketing, and value-added product creation. Producers will have a direct say through the use of a survey in helping determine what areas of education they will receive.” As of this winter, organizer Maddy Bartsch shared that “Producers included in the sourcebook have successfully completed the “fiber portfolio” program with Kyle Huneke of Riverland Community College. TRF Producers included in the sourcebook have completed their farm narrative and accompanying information for the sourcebook. Woven and knit samples are almost complete, with just one more sample left. Illustration work is finishing up with illustrations including a map of strategic geography, local fiber timeline, fiber to yarn/fabric illustration, illustrations of types of animals for definition page at the beginning.” (Photo by Maddy Bartsch, sheep illustration by Jaclyn Charais)



The micro-grant awarded to the Connecticut Fibershed is supporting the group’s first inventory and analysis of local fiber and yarn quality and quantity, which will be documented in a sourcebook and shared at several events in the region including fiber festivals. The organizers shared progress photos and noted: “The first batch of yarns for the swatch book has come in and through a partnership with [TILL: bioFASHIONtech LAB] they’re off to a materials scientist at Stony Brook University, for analysis, helping to better understand the unique properties and opportunities of Connecticut wools. We’re excited to hear what they have to say.”



The Southern California Fibershed emerged this year and received a Micro-Grant to foster network connections from producer outreach and directory building to educational events: “We will compile a comprehensive directory of our fiber and resources, which we see evolving over the next 2-5 years into a resource akin to the NY Textile Lab’s tactile compendium (and revenue source). We will focus on regional outreach to each county i.e. Kern, San Bernardino, Riverside, Santa Barbara, Ventura, Orange, Imperial (Mary Hurley), San Diego, and of course, Los Angeles. We will create programming to build awareness of the fibershed, and use our platform (digital and in-person) to share programming created by our members. We will also use our platform to share fellow fibershed programs and successes” At the cusp of 2020, organizer Lesley Roberts shared that five producer profiles have been developed through interviews and visits (pictured above, a visit to a local natural dyer), the first volunteer group meeting has been scheduled. Six key organizational connections have been initiated with regional brands, non-profits, and textile advocates. (Photos by Lesley Roberts)



The Rust Belt Fibershed has launched a survey and outreach to alpaca producers through in-person, and network channels, which is the first phase of their Micro-Grant project and will feed into meet-ups in person and virtually, as well as the development of educational materials. “By springtime, we aim to have a deep database of Rust Belt Fibershed alpaca farms, land management practices, fiber processing usage, interest in regeneration, as well as having identified any roadblocks to establish trends and build on key lever opportunities with future projects. This is a starting point for future projects that will draw down carbon as well as draw consumer and investor attention towards the potential for local alpaca cloth. With this increased understanding and improved relationships, we will feel empowered to make regenerative connections for our supply web.” (Photos via Rust Belt Fibershed Instagram)



In Tamil Nadu, India, the Prakriti Fibershed is making use of a Micro-Grant to develop a field trial of regenerative cotton farming practices. The funds have supported drip irrigation and site visits and will contribute to the creation of soil to skin fabric with local manufacturers. Working with a 5-acre field trial, this is “a model project to inspire more local/ regional farmers to adopt organic farming practices, fostering employment and empowerment among the village communities and ensuring a fair income distribution throughout the supply.



The project will also aim to address diverse, sustainable farming needs, including waste management (through composting), soil water conservation and rainwater harvesting, carbon farming, residue-free, and smart agricultural practices.” (Photos by Ashish Chandra)

Partner Project

Grazing School of the West

BY BRITTANY COLE-BUSH

COMPLETED:

- Created and facilitated next generation grazer hub-spaces at GrassFed Exchange & Quivira Coalition's Regenerate Conference.
- Provided Technical Assistance + Industry Education + Opportunity Cultivation: Assessment of current grazing operations in Southern California; Training "Prescribed Grazing 101" for the San Diego Foundation, TA for the Ojai Valley Fire Safe Council, and relationship building with a regional real estate developer for future prescribed grazing contract prospects.
- Served as a guest educator at the New Cowgirl Camp training 22 women new to animal agriculture and holistic management providing resources and training of basic animal husbandry
- Educated Ground Level Needs & Challenges Assessments: Informal interviews with first-generation graziers, established graziers, and prospective graziers throughout the year led to a better understanding of ground-level needs and challenges that have informed how GSW can aid its constituency with the greatest impact in 2020
- Delivered, coordinated and facilitated *Ovines in the Vines Field Day* at Tablas Creek Vineyard to educate vineyard managers and grazing operators about integrating sheep into vineyards, orchards, and croplands. 60 participants attended coming from a diverse array of backgrounds

GRAZING SCHOOL OF THE WEST (GSW) began with the goal of developing programs to uplift next-generation of agrarians into the critical work of restoring ecosystem function at watershed spatial scales. Our primary activities included organizing small groups of burgeoning and established



Above, "Radical Softness as a Boundless Form of Resistance"—Beth Robinette of the New Cowgirl Camp in Cheney, Washington explains the benefits of on-farm harvesting. Brittany Cole Bush was a guest trainer representing the Grazing School of the West sharing small ruminant management best practices and resources for the new grazer in Summer, 2019.

Top, presenters at Ovines in the Vines: Kelly Mulville, Brittany Cole Bush, Robert Rutherford, Robert Irwin, and Nathan Stuart. Above, Brittany Cole Bush of GSW getting ready to share her presentation "So you want to be a grazer?!" to prospective graziers looking for job placement at the Quivira Coalition's Regenerate Conference in Fall 2019.

graziers to facilitate an exchange of knowledge and ideas. Within these spaces, we fostered dialogue, creative expression, and ideation at several industry events. GSW recognizes these exchanges are essential to building an educated and supported grassroots network of land stewards.

With the urgent demand for ecologically sound approaches for vegetation management, GSW also dedicated time to education and advocacy directed towards public and private land managers. GSW facilitated emerging projects by providing technical assistance and training to decision-makers at the ground level.

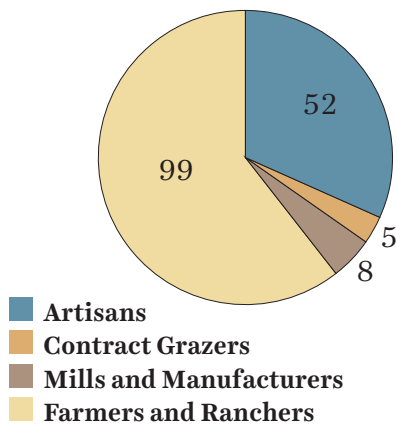
We commit our time and resources to strategically provide key support to the burgeoning industry of contract grazing. This is accomplished through cultivating land access opportunities for new grazers, providing business consulting that is concurrent with on-the-ground training that we have architected over the past several years. These strategies aim to support new and established graziers with skills, resources, and business acumen to ensure successful transitions into the fields and sectors of animal agriculture and land stewardship.

Regional Textile Economies Program

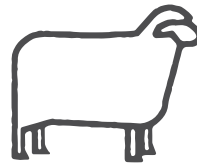
PRODUCER NETWORK

- 164 producers in 33 counties working 157,285 acres of land
- 26 new producer members in 2019 and 37 in 2018: 38% of Fibershed's producer members joined in the last two years
- 37 out of 99 land-based producers are Climate Beneficial Transitional or Climate Beneficial Verified (38%)
- Automated producer membership renewal system continues to improve producer renewal rates, from 67% in 2018 to 77% in 2019

Fibershed Producer Membership by Type



Fibershed Producers by County	
#Producers in each County	County
1 - 4	Amador, Butte, Calaveras, Contra Costa, Crockett, El Dorado, Fresno, Humboldt, Lake, Lassen, Madera, Modoc, Monterey, Napa, Nevada, Placer, Sacramento, San Francisco, San Luis Obispo, San Mateo, Santa Clara, Santa Cruz, Shasta, Siskiyou, Stanislaus, Sutter, Tehama
5-10	Sacramento, Yolo, Solano
11-20	Mendocino
20 +	Marin, Sonoma



Metrics

THE NORTHERN CALIFORNIA FIBERSHED COOPERATIVE

- Produced 6 experimental pop-up show events
- More than doubled its voting membership

MANUFACTURING ASSESSMENT AND DEVELOPMENT

- Launched a Regional Fiber Manufacturing Initiative (RFMI) to lead a multi-stakeholder group to assess, prioritize, and provide due diligence on regional fiber and dye milling systems
- Developed and delivered a financial model for late stage milling for our region that provided the foundation for a new social impact focused business partnership for our region's weaving mill that will modernize strategic ailing equipment
- Designed and produced a Manufacturing Infrastructure Map for public and brand education that highlights each stage of processing within the wool, cotton, flax, and hemp supply chains from raw fiber to fabric and identifies current and needed infrastructure in our region.

SUPPLY CHAIN SUPPORT

BUSINESS CURRICULUM

- 14 Fibershed business courses were developed and offered to the Fibershed Producer Program membership
- 8 one-on-one technical assistance and coaching sessions were completed with Fibershed producer members



FIBERSHED KNITALONG 2019

- 54% of Fibershed Symposium survey respondents reported yarn purchases
- 3 knitting pattern designs highlighted

Climate Beneficial™ Agriculture Program

CARBON FARMING, PLANNING AND POLICY

CITIZEN SCIENCE SOIL SAMPLING

- Delivered Citizen Science Soil Sampling results to 16 producers covering 41 individual sites for 2018 soil testing. For 2019 soil testing, added a total of 47 sites and 13 new farms and ranches to the soil sampling program, completing testing at 33 new sites for new farms and ranches and 14 new sites for 8 producers already in the program.



- Provided one-on-one technical support in 30-minute calls with staff soil scientist to 22 producers to interpret and use soil testing results.

POLICY

- 8 Fibershed producers received \$416,000 in Healthy Soils Program grants to sequester 955 Metric Tons (MT) CO₂e per year.

FIBER SYSTEMS RESEARCH

- Constructed 3 Johnson-Su compost bioreactors on 2 large-scale cotton farms in the San Joaquin Valley

BAST FIBER RESEARCH

- In collaboration with 2 manufacturers who are developing scalable technologies that attempt to minimize water and eliminate synthetic chemistry from the bast fiber softening process, tested 3 batches of hemp fiber in 2 wool mills and 2 cotton mills for suitability to local textile production
- Developed processes (“recipes”) for refining hemp fiber, blending it with wool, and spinning and weaving it into cloth and created 4 textiles with multiple weaves utilizing various blends of Climate Beneficial wool and North American hemp
- Developed a Bast Fiber Exhibit and provided public and brand education at 3 events with tactile exploration of bast fiber processing and hands-on comparisons between hemp, flax, and native bast fibers dogbane, nettle, and milkweed

Consumer Education and Advocacy Program

EDUCATION, EVENTS, AND TRAININGS

EDUCATION

- 7741 total listens to the first season of the Soil to Soil podcast
- 2592 pageviews of the Fast Track to Slow Fashion webpage, home to the Fibershed Clothing Guide



- 600+ print copies of the Fibershed Clothing Guide distributed locally and internationally
- 35 press and media features from local, national, and international outlets
- 17 social media posts per week on average
- 67% growth in the audience on social media
- 64,297 total reach in followers and readers across digital communications channels
- 35% website user growth to a total pageview count of 299,613 views
- 32% increase in blog readership to 9,912 pageviews
- 35 event-based presentations and talks to a range of audiences
- 2230 individuals educated through speaking engagements

EVENTS

- 200 attendees of the full day Wool & Fine Fiber Symposium programming
- 500+ total reach of Symposium in-person visitors and online learners

- 17 Symposium speakers and panelists
- 39 regional fiber and dye economy businesses represented in the Symposium Marketplace

DESIGN SCHOOL COLLABORATIONS

- 2 courses developed and led at California College of the Arts
- 25 Student design submissions to FIDM Fibershed Design Challenge

AFFILIATE NETWORK

- 44 active Fibershed Affiliates around the world
- 7 Fibershed Affiliate Micro-grants awarded in 2019
- 8 new Fibershed Affiliate members welcomed
- 6 Fibershed Affiliate communities working to develop Climate Beneficial programs
- 6 Fibershed Affiliates prototyping local cloth recipes and “Community Supported Cloth” models

Financial Statement

January 1 - December 31, 2019

REVENUE & EXPENSES

Revenue

Grants	\$1,068,505
Event/Earned Revenue	\$36,548
Contributions	\$28,514
Total Revenue	\$1,133,567

Expenses

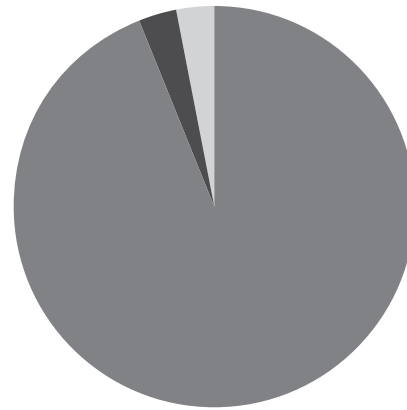
Programs/Outside Services	\$700,296
Personnel	\$348,807
Admin/General Operations	\$66,279
Total Expenses	\$1,115,382

ASSETS & LIABILITIES

Current Assets	\$556,293
Total Assets	\$556,293

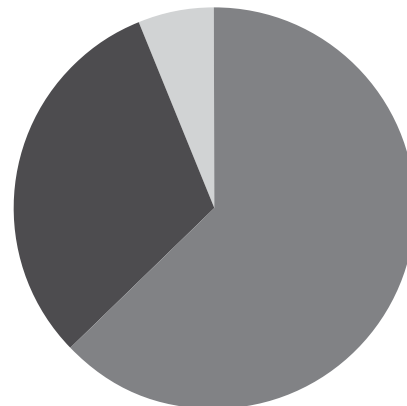
Liabilities	\$29,869
Equity	\$526,424
Total Liabilities & Equity	\$556,293

Fibershed is exempt from federal tax under section 501(c)(3) of the Internal Revenue Code. EIN# 45-3055196.



REVENUE

- 94% Grants
- 3% Event/Earned Revenue
- 3% Contributions



EXPENSES

- 63% Programs/Outside Services
- 31% Personnel
- 6% Admin/General Operations

Donors, Members, Supporters & Volunteers

Our donors consist of individuals, organizations and foundations that have the ability to allocate generously to Fibershed's projects and general operating expenses. These donations, which are tax-deductible, make up the largest portion of Fibershed's annual budget.

Grants

Bainum Family Foundation Fund
Blackie Foundation
Calhoun/Christiano Family Fund and Advised Fund
of the Community Foundation of San Benito County
Fish Arm Fund at the East Bay Community Foundation
Greater Washington Community Foundation
Island Foundation
Leaves of Grass Fund
Lydia B. Stokes Foundation
Pizzle Dizzle Fund
Rockefeller Philanthropy Advisors
The 11th Hour Project
The Christine M. Scott Foundation
The Elizabeth R and William J. Patterson Foundation
The Regenerative Agriculture Foundation
The Rudolph Steiner Foundation

We are deeply grateful for everyone's participation, whether it be as a donor, a member, a supporter or a volunteer. (If we have omitted anyone accidentally, please accept our apologies.)

Fibershed Producer Program Members

2NFrom	Ecotone Threads
5 Creek Farm	Emigh Livestock
Ace 'n The Hole Ranch	Emily Cunetto
Alpaca on the Rocks	Ewe & Me 2 Ranch
Alpaca Shire	Fawnbrooke Farm
Alpacas of El Dorado	Ferndale Farm
Alpacas of Marin	Fiber Circle Studio
Ambatalia	Fiber Confections
– nondisposable life	Flint Outdoors
Anderson Ranch	Fortunate Farm
Arapaho Rose Alpacas	Free Hand Farm
Ashley Eva Brock	Freestone Ranch
Barbara MacDonald	Full Belly Farm
Barinaga Ranch	Full Circle Wool
BioHue	Gather the Universe
Black Mountain Farm	GDS Cloth Goods
Black Rock Ranch	Harvest & Mill
Blue Barn Farm	Heart Felt Fiber Farm
Blue Oak Canyon Ranch	Henderson Studios
Bodega Pastures	HexenWald Ranch
Bo-Rage Yarns	Hollow Bone
Bungalow Farm Angora	Home Spun Waldorf Dolls
Butte Mountain Farm	Hulsman Ranch
California Cloth Foundry	Huntergatherer Artifacts
Canfield Hill Farm Shetlands	Huston Textile Company
Caprette Cashmere	ImagiKnit
Carol Lee Shanks	Integrity Alpacas & Fiber
Cathy Wayne	Italia A Collection
Chico Flax	Jensen Ranch & Tomales
Craig's Indigo	Sheep Company
Crockett Fiber Art Studio	JG Switzer LLC
Danu Organic	Kaos Sheep Outfit
Double Diamond Alpacas	Kassenhoff Growers
Downhome Handspun Fibers	Keyaiira
Duckworth Farm	Kirabo Pastures
Earth My Body	Kirsten Sedestrom
EarthScapes Sheep Grazing	Kosa (arts)
Services	Lani's Lana ~ Fine
	Rambouillet Wool

(continued)

Fibershed Producer Program Members

(continued)

Liberty Meadow
Lorran Bronnar
Macedo's Mini Acre
Madrone Coast Farm
Marin Sewing Lab
Marin Sun Farms
McIntyre Ranch
Meghan Shimek
Menagerie Hill Ranch
Mendocino Wool & Fiber
Meridian Farm
Meridian Jacobs
Michala Jeberg
Milk & Honey 1860
Millertown Sheep Farm
Moon Hollow Ranch
Myrrhia Fine Knitwear
New Agrarian Collective
No Man's Farm
Oakland Fiber
Occidental Arts & Ecology
Center
Outlaw Valley Ranch
Owl Oak Acres
Pacific Knitting Retreats
Pepper Lane Farm
Plantspeople
Pont Family Farm
PT Ranch
Red Creek Farm
Red Twig Farm
Red Willow Pond
Redwood Coast Mercantile
Rhoby's Ranch
Rockstar Alpacas
Rumpelstiltskin Yarn Store
Sarah Fifield
SecondLeaf Workshop
Sharon Harston
Sheep to Shop
Shepherd's Dream

Shepherdess Holistic Hides
Sierra Rose Alpacas
Silk Farm
Sincere Sheep
Skylark Ranch
Slowfiber
Sophie's Icelandic Sheep
Spinning in the Wind
Spirit play
Spring Coyote Ranch
Starbuck Station Wools
Stemple Creek Ranch
Stonehenge Llama Ranch
Stone Steps Farm
Summer Solace Tallow
Sunny Oak Farm
The Farm – Mendo
Timefelt
Tolenas Mohair
Tree House Felt
True Grass Farms
Twirl Yarn
UCCE Elkus Ranch
Environmental
Education Center
Uptown Alpacas
Valhalla Yarns
Valley Oak Wool Mill
Vreseis LTD
Warner Mountain Weavers
Weirauch Farm & Creamery
West By Midwest
West County Fiber Arts
Wildcat West
Wild Fiber Art Farm
Wild Oat Hollow
Wild Rose Farm
Wind Dancer Ranch
Windrush Farm
Womack Family Farm
WoolFulLove Farm
and Fibers

Supporters

Our supporter program is a way to engage the general public with our work. Supporters receive various benefits depending on their level of support, and they are welcomed into the Fibershed community through early invitation to our events, workshops and symposia.

Sara Bauer	Heidi Carey
Victoria Becker	Robin Comer
Jeanne D'Arcy	Brittany Heck
Stafford Dean	Barbara Hoff
Nancy Deren	Monica Kamsvaag
Robin Frank	Anna Lytle
Michael Foulkes	Caitlin Mccann
Anne Green	Anna Mieritz
Jason Longo	Gail O'Dea
Iris Moore	Kevin O'Malley
Vicki Nichols	Sarah Oliver
Molly Taylor	Kent Reeves
Ned Taylor	Lila Ryan
Rani Saijo	Lee Serrie
Caroline Bauhaus	Heidi Struble
Joy Brace	Megan von Feldt
Janis Caplan	William Wolpert

2019 Carbon Farm Fund Donors

Patricia Alexander-Weston	Keith Levi
Barbara MacDonald	Erin Levi
Joy Brace	Miranda Limbach
Shana Broderick	Lauren Magrisso
Grace Bueti Malloy	Theodosia Maritzer
Kerry Robin Bullock-Ozkan	Bear McGuinness
Amy Cook	Felicity More
Kacy Dapp	Guadalupe Munoz
Stafford Dean	Vicki Nichols
Abby Goodman	Nell Painter
Barbara Hoff	Finella Pescott
Sophie Houghton	Timo Rissanen
Andrew Jackson	Cameron Russell
Helen Krayenhoff	Yann Seznec
Harry Keally	Heather Smith
Kerry Keefe	Donna Stusser
Nicole Kenney	Jennifer Suemnicht
Erika Kieffer	Italia Hannaway
Suzanne Klein	Sara Sweedler
Holly Kretschmar	Charlotte Tefft
Diana Krotz	Nicholas Wenner
Matthew Levi	Fancy Tiger Crafts
Kristen Levi	Botanical Colors
Pam Levi	

2019 Gala Volunteers

Jessica Church
Marcela deLira
Alexandra Golikov
Sarah Jetton
Annarose Kennedy
Alvaro Matheu
Marivel Mendoza-Matheu
Isabel Murillo
Samantha Podoll
Cora Roberts
Carla Rosin
Kiara Ryan
Kirsten Sedestrom
Robyn Smith
Rebecca Stone
Isobel Stucky
Melissa Stucky

2019 Symposium Volunteers

Jessica Church
Claire Hutkins-Seda
Julia Lomtevas
Samantha Podoll
Case Pollock
Cora Roberts
Kirsten Sedestrom
Robyn Smith
Rebecca Stone



(Photo by Paige Green)

Project Partners



TEJU ADISA-FARRAR

Teju Adisa-Farrar is a Jamaican-American writer, poet and urban geographer based in Oakland, California. Her focus is on environmental and cultural equity from a social geographies perspective. Having lived in 7 different countries, Teju has been involved in advocacy and human rights domestically and abroad for over a decade working on issues spanning political, racial and environmental justice. Her super power is connecting the dots between issues, globally. Teju supports artists, activists, initiatives, organizations and subaltern communities who are mapping/making alternative resilient futures.



BRITTANY COLE BUSH

Brittany Cole Bush (aka BCB) works as an advocate and educator to support next-generation agrarians working in the field of land stewardship with livestock. With experience as a first-generation grazer managing a large-scale contract grazing outfit in the Bay

Area early in her career, she has since become a professional advocating for carefully managed grazing in efforts to enhance ecological health and manage fire-prone vegetation. BCB is also an entrepreneur and partner with Laura Schoorl of Shepherdess Holistic Hides, a value-driven business purveying sheep and goat hides from regionally-sourced livestock.



NATHANAEL GONZALES-SIEMENS

Nathanael Gonzales-Siemens is one of the owners of the multigenerational Fat Uncle Farms. His goal is to leverage natural ecosystem processes to transition away from dependency on labor, petroleum and chemical inputs. Before transitioning back to the family farm, Nathanael spent a decade teaching in inner-city Los Angeles and China and partnering with local organizations to build alternatives to the criminal justice system. The experiences of education and community empowerment underpin his ideology that regenerative agriculture should positively impact everything and everyone it touches.



MARIE HOFF

With a degree from UC Berkeley, Marie began working with her own sheep in 2013 with the start of Capella Grazing Project. Capella Grazing integrates heritage breed Ouessant cross sheep with landscapes in need of the service of grazing, such as vineyards, orchards, and private property seeking fire prevention and brush management. She is a vocal supporter of grazing for fire safety. Capella Grazing has since folded in with Marie's next project, sourcing coarse wool from Climate Beneficial™ ranches in CA, branded Full Circle Wool. Marie continues to run her Ouessant sheep, and their story is online on Instagram under the handle @stargrazers. Committed to a healthy future, Full Circle Wool works to connect people with the land they inhabit in a deep, meaningful, and nourishing way.



TYLER JENKINS

Tyler Jenkins is a farmer and organizer who lives and works in North Carolina. He has spent the last decade in various public and private sector jobs in the fields of agriculture, public health, and economic development including local food businesses, non-profits, and local government, combining research with on the ground design and implementation. I've been privileged to work to design innovative approaches in organizing communities, creating strategy, building partnership networks, recommending policy, educating, supporting businesses, developing markets, and organizing multiple cooperative enterprises and workplaces experimenting with democratic organization and principles. Currently, he spends most of his current time as a labor worker: sweeping floors, pulling weeds, planting crops, and cutting lots of vegetables.



LYNETTE NIEBRUGGE

Lynette Niebrugge works as the Carbon Farm Planning Manager for Carbon Cycle Institute where she focuses on building the capacity of land managers and agricultural conservation planners to conduct carbon farm planning and implementation. In partnership with Fibershed, Lynette is working to

assisting in developing an approach and implementable strategy for small farm carbon farm planning and implementation, including support on developing land-owner education. Lynette received her undergraduate degree from the University of Illinois in Natural Resources and Environmental Science and her Masters degree in Soil Science from California State Polytechnic in San Luis Obispo. She held a forestry position within the United States Forest Service for several years before joining the Marin Resource Conservation District in 2011 where she focused on education and implementation of carbon farming. She is a founding member of the Marin Carbon Project a regional coalition of ranchers, land managers and government agencies devoted to supporting agriculture as a solution to climate change.



HEATHER PODOLL

Heather Podoll is the Policy Coordinator for Fibershed. She manages communication and outreach relating to public grants and other core Fibershed projects. Heather holds an M.S. in Agricultural Ecology from UC Davis. She has spent the past 20 years involved with research, practice, promotion and teaching of sustainable and organic agricultural systems, working with a range of nonprofit, philanthropic and educational organizations. As an avid knitter, she is delighted to bring together her background in ecological research and agricultural systems with a holistic and local perspective on fiber arts and textile systems.



ADRIAN RODRIGUES

Adrian Rodriguez is a founder and managing partner of Hyphae Partners where he helps companies build regenerative business models. He is also a lecturer on food innovation at the University of California Berkeley Haas School of Business and is helping design and teach an entrepreneurship intensive for farmers at the Stone Barns Center for Food & Agriculture. Previously, he has worked at Patagonia within its Venture Capital arm Tin Shed Ventures helping author a standard for Regenerative Organic Agriculture and exploring Regenerative Organic Land Funds. He is a graduate of Berkeley Haas' full-time MBA program. At Haas, Adrian was a portfolio manager of the Haas Socially Responsible Investment Fund, a member of the Center for Responsible Business' Student Advisory Board, and co-taught a speaker series on Transformations in the Food Industry. Prior to Haas Adrian worked at Morgan Stanley for six years and helped long time horizon investors manage their asset allocations. Adrian received a B.A. in English from Williams College, studied English literature at Exeter College, Oxford University and holds the Chartered Financial Analyst designation. He's an avid chef, backyard farmer and budding yogi.

(continued)



FRANÇOIS-JÉRÔME (FJ) SELOSSE

FJ is a founder and managing partner of Hyphae Partners, where he helps connect impact investment capital to regenerative businesses and projects. As a former fellow at the Environmental Defense Fund and member of the sustainability team at TPG Capital, he has helped private companies design and implement sustainability strategies. He is a graduate of Berkeley Haas' full-time MBA program. At Haas, he focused on researching and designing blended financial structures that catalyze and align development, conservation and agricultural stakeholders. Prior to his MBA, FJ spent seven years working for investment banks and investment funds to manage and invest capital across industries and asset classes. He holds a B.A. in Economics and Statistics from the Ecole Polytechnique in France, and a M.S. in Financial Engineering from New York University. When he is not spending time with his 2-year old daughter Margaux, FJ can be found protecting his backyard garden from ravenous Bay Area squirrels.



OLIVIA TINCANI

Olivia Tincani is a food and agriculture business educator and consultant with 16 years of experience in the field. Olivia Tincani & Co. provides business, financial and strategic planning and technical assistance for small-scale independent farms, ranches, food businesses, and the institutions that service them. Her work is grounded in a deep entrepreneurial history and her ambitious spirit infuses her teaching and consulting. Her specific expertise includes livestock operations, program and curriculum design, whole animal supply chains, regional food systems strategy, communications & marketing, and community building.



ERIN WALKENSHAW

Erin Walkenshaw is fortunate to have worked with a number of non-profit and for-profit entities and farms whose common thread is their work towards the emergence of health in and across systems. Her work with Fibershed is focused on designing and implementing a pilot program to collaborate with land managers to develop and implement carbon farm plans and create a peer-to-peer support network of fellow carbon farmers.



NICHOLAS WENNER

Nicholas Wenner is an engineer focusing on regenerative design and manufacturing. His experiences range from making and working with natural leathers in the mountains of Eastern Washington to designing and making modern products using computer modeling and CNC machining while earning a Master's in Mechanical Engineering from Stanford University. He aims to bridge the wisdom of the past with the possibilities of today to foster mutually supportive relationships between modern humans and the world that sustains us.



STEPHANY WILKES

Stephany Wilkes is a writer, researcher, business strategist, and UC-certified sheep shearer and ASI-certified wool classer. She practices all of these skills throughout the Northern California Fibershed and beyond. Stephany cultivates a dye garden, knits, spins, and offers fiber classes and workshops at yarn shops, festivals, and schools, to help people learn more about where their clothes come from. Her first book, *Raw Material: Working Wool in the West*, was published by Oregon State University Press in October 2018. stephanywilkes.com

Fibershed Staff



REBECCA BURGESS

Rebecca Burgess is the Executive Director of Fibershed, and Chair of the Board for Carbon Cycle Institute. She has over a decade of experience writing and implementing hands-on curriculum that focuses on the intersection of restoration ecology and fiber systems. She has taught at Westminster College, Harvard University, and has created workshops for a range of NGOs and corporations. She is the author of the best-selling book *Harvesting Color*, a bioregional look into the natural dye traditions of North America, and *Fibershed: Growing a Movement of Farmers, Fashion Activists, and Makers for a New Textile Economy*, released in 2019. She has built an extensive network of farmers and artisans within our region's Northern California Fibershed to pilot the regenerative fiber systems model at the community scale.



JESS DANIELS

Jess Daniels is the Director of Communications & Affiliate Programming for Fibershed, where she creates written and visual collateral connecting wearers to the ecological and social source of their clothing, and facilitates an international grassroots network of communities building soil-to-soil fiber systems. She has a decade of experience working to strengthen local food and fiber systems, from urban farming and education to sustainable agriculture advocacy campaigns and litigation, and her work has been published in the journals *Agriculture and Human Values* and *Making Futures*. She holds a B.A. in Environmental Studies and Visual Art from Brown University, where she completed textiles coursework at Rhode Island School of Design and studied with the International Honors Program 'Rethinking Globalization' field school in India, Tanzania, New Zealand, and Mexico.



MOLLY OSHUN

Molly Oshun is the Community Agricultural Director for Fibershed. She is a Sebastopol native, a water resources engineer, and a committed community organizer. Prior to Fibershed, Molly worked on fire resilience at Sonoma Water, community flood planning in Southside Chicago, and urban design throughout the Bay Area. Molly holds a B.S. in Civil and Environmental Engineering from Stanford, a certificate of conflict mediation, y habla español con fluidez. A passionate gardener, backpacker, volunteer prescribed burn firefighter, and folk herbalist, Molly is grateful to join a community of soil stewards and fiber visionaries. Molly directs the producer program and serves as the liaison to the Northern California Fibershed Agricultural Cooperative.



MARISOL VALLES

Marisol Valles is the General Operations Manager for Fibershed. She is a seasoned executive with over 20 years of experience in non-profit and hospitality management graduating with a BA from San Francisco State University. Through her solid management, a keen eye for detail and consistent application of policy, Marisol oversees the operations and human resources for the organization.

Board of Directors



REBECCA BURGESS, M.ED, CHAIR

Indigo farmer, author, and community organizer. Her work is focused on natural dye processes and regenerative agriculture, textile education and public speaking. She is the executive director of Fibershed.



KAT ANDERSON, PH.D

Ph.D. in Wildland Resource Science from UC Berkeley and author of the book *Tending the Wild: Native American Knowledge and the Management of California's Natural Resources*. The book was recently chosen by the celebrated permaculture designer Ben Falk, as one of the most important books to read in order to permanently solve food security. Kat has worked with Native Americans for over 25 years, learning how indigenous people judiciously gather and steward native plants and ecosystems in the wild. Her interests are to learn, celebrate, and restore the similar plant uses, gathering and tending practices, and ethical stances towards nature that are in multiple local cultures here and around the world.



MARLIE DE SWART

Marlie is a fiber skills educator and small business owner, as well as a fiber and ceramic artist. She has been involved in creating fiber works from local sources since childhood. She grew up in Holland, graduated from the Sorbonne in Paris and Occidental College in Southern California, and met her husband while attending Art Center College of Design. Currently Marlie has a local fiber arts cooperative store, Black Mountain Artisans, in Point Reyes Station. She recently published a book of her knitting designs called *Knitting Woolsapes, Designs Inspired by Coastal Marin Wool*.



DUSTIN KAHN,
SECRETARY/TREASURER

Dustin has been a graphic designer for over 40 years, primarily in publication and website design. She also grows dye plants and is a natural dye instructor, having studied natural dyes since 2009, with a special interest in indigo. Dustin is organizing fiber arts classes at the new Fibershed Learning Center in Marin County, to open in 2020.



NICK L. TIPON

Nick is a member and elder of the Federated Indians of Graton Rancheria. A retired high school teacher, he has served as Chair of the Tribal Education Committee and the Sacred Sites Protection Committee of Graton Rancheria. He was a Board member of the California Mission Foundation. He is currently a Board member of the Historical Society of Santa Rosa, Fibershed, and is a consultant for the National Smithsonian Museum of Natural History, the Richmond History Museum and the Field Museum of History in Chicago, Illinois. He is an active faculty member of the STRAW (Students Teachers Restoring A Watershed).

Among Nick's current interests is investigating the effects of the colonialism during the "contact period" on his ancestors, by the Russians, English and Spanish. He is investigating the impacts of climate change on sacred Tribal resources and lands from a cultural perspective and TEK (Traditional Environmental Knowledge) perspective. He was recently a presenter at the California Adaption Forum on these topics.





FIBERSHED

Local Fiber, Local Dye, Local Labor