

2017 Annual Report



FIBERSHED

Local Fiber, Local Dye, Local Labor

"When we deepen our inquiry of the connections between our clothing and the soil—and the subsequent value-addition that follows from the farm to our skin—we immediately find ourselves investing or divesting directly in the core issues of our era—gender, racial and economic equity, climate change, soil loss, mass extinction—all of these core issues are tied to our wearing choices."

Letter from the Executive Director

2017 was a year that amplified our commitment to the omnipresent systems that unite us—the soil, plants, four-legged and two-legged animals that compose the life-blood of Fibershed communities. Amongst the multiple converging crises that were brought into plain and unequivocal view this year, we kept our organizational attention and thus the attention of the tens of thousands of individuals we reach, focused upon the generosity of local living systems that generate our natural fiber and dyes. Each day we felt the need and the value in reminding ourselves and all those who take part in our workshops, citizen science and events, that even with the cascade of environmental, political and social turmoil we're experiencing, we continue to have ample access to our first form of shelter (the clothes on our backs), and remaining tethered to that simple yet critical fact establishes the first stage of awareness that we need to begin to deepen and refine our relationships with natural fiber and dye systems. Remembering that we are all wearers is the first step in the journey of transforming our relationship to the materials that protect us, and support us in remaining resilient.

This year was a benchmark for getting the word out about exactly how antiquated and wasteful our current textile and dye systems really are, and why a wholesale transformation of the industry is called for. Without needing to search in any great depth—there is now ample public information that outlines first hand the chaotic environmental and cultural impacts that are perpetuated by modern global textile production systems. From the death of rivers outlined by the documentary, **River Blue** (<http://riverbluemovie.eco>); to the heinous levels of mutagenic microplastic clothing lint in our oceans and drinking water, as noted by **The Rozalia Project** (<http://rozaliaproject.org>)

and UC Santa Barbara's **Bren School** (<https://brenmicroplastics.weebly.com/project-findings.html>); to the reminder that less than 1% of clothing is certified fair trade by the Fashion Revolution organizers; to the blatant waste of the system outlined so clearly by MacArthur Foundation's recent publication **A New Textile Economy, Redesigning Fashion's Future** (<https://www.ellenmacarthurfoundation.org/publications/a-new-textiles-economy-redesigning-fashions-future>). In 2017 we saw these highly problematic issues brought to the public in new, accessible and novel ways. While there remains a massive outreach strategy needed to deepen an understanding of these problem statements within the culture at large, we at Fibershed continue to expand a publicly focused narrative that these travesties are symptoms of a system that lacks a system-wide holistic guiding framework. In response, our organization has worked diligently this year to provide both conceptual framing and hands-on experiences that deepen our collective ties to what we have come to define as the Soil-to-Soil framework.

When we deepen our inquiry of the connections between our clothing and the soil—and the subsequent value-addition that follows from the farm to our skin—we immediately find ourselves investing or divesting directly in the core issues of our era—gender, racial and economic equity, climate change, soil loss, mass extinction—all of these core issues are tied to our wearing choices.

The Soil-to-Soil framework addresses symptoms by tackling root causes, and this is done through taking circular thinking to the biogeochemical level—and seating our awareness on the transfer of carbon between carbon pools within a regional economic focus. This framework puts into immediate question any fiber or dye that damages our soils (earth's second largest carbon pool). Natural fiber and dye species farming can be integrated into existing agricultural models—through integrated crop and

livestock systems, the development of crop rotations, the implementation of 35 verified Carbon Farm practices—as a means of rebuilding the 136 billions of lost carbon that we've released into our atmosphere. We've shown time and time again that farming can be a 'draw-down' solution, and it must be, given the short window of action that catastrophic climate change has defined for us. The Soil-to-Soil framework does not include fiber or dye sourced from the lithosphere (earth's deepest carbon pool)—based upon our understanding of the highly pervasive micro pollution impacts we are seeing within our oceans (earth's largest carbon pool), and the reality that the extraction and refinement of fossil carbon for plastic is responsible for releasing carbon dioxide into our atmosphere. The framework is grounded in the development of efficient and renewable energy powered manufacturing systems that exist in proximity to where our fibers and dye plants are grown. We focus on the creation of meaningful livelihoods based in decentralized manufacturing hubs, for a world needing to bridge economic and cultural divides which are clearly contributing to political friction. End of life strategies for clothing are based on the returning of carbon to the soil from which it came (after many recycling and mending options have transpired); natural fiber textiles that come from regenerating soils can and must be returned to those soils—this action both completes and initiates the cycle all over again. Carbon from our clothing creates a balanced compost when blended with nitrogen and mineral-rich inputs from manure and food waste.

This year—thanks to the committed support from our community—we were able to carve the pathway for living expressions of the Soil-to-Soil

framework. We generated tangible examples of the first Climate Beneficial textiles through facilitating unlikely and welcome collaborations between urban designers and the rural ranching and farming community. Twenty-seven designers worked with producers to develop a new generation of wearing recipes. We quantified the soil and atmospheric impacts of these efforts thanks to the manifestation of years of collaboration with scientifically focused academic partners. Within our region, the doors of three new mills were opened, and our producer program grew to represent over one million acres of arable and rangeland—all managed by individuals and families who are committed to implementing carbon farming. We worked with our producers and legal support throughout 2017 to develop the first natural dye and fiber Agricultural Coop in the state of California. The non-profit is a member and shareholder of the Coop, and will be supporting Coop membership outreach through active engagement with our Producer Program members. At our annual Symposium, we shared how Fibershed's Soil-to-Soil framework provides decentralized solutions that address the core textile systems issues of our time. We invited a host of problem statement analysts to openly share the depth of the multiple crises that the industry is experiencing; these speakers were followed by grass roots solution providers who were able to share their innovative new natural fiber blending recipes, equitable business models and processing technologies with a sold-out crowd and an international live-streamed audience.

While we continue to strengthen and deepen the quality of our relationship to our community, we do so within conditions that offer significant hurdles.

This year was not without struggle, our producer community lost pastures, winter feed, and structures in the fire storm that ravished our land base last autumn. We lost colleagues at the federal level because their jobs have come into question and their agencies are in process of being consolidated or eradicated. This year brought forth a new level of challenge—we all felt it, no one was alone in this. And yet, it is these challenges which have consecrated our commitment to deepening, expanding and manifesting our work, and showing how Fibershed communities are and will continue to weave and knit our ethical and climate change ameliorating wearing-future into being. Thank you for all you do to contribute to this movement; we so look forward to learning, growing and creating with all of you in 2018.

Thank you,



Rebecca Burgess



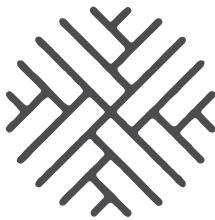
Photo by Paige Green

COMPLETED:

- 16 professionally photographed stories on farmers and artisans
- 4 stories on regional textile projects
- 17 new farms and 18 new artisan members added to the Producer Program
- Refined website formatting & maintenance featuring visual biographies of producers
- Data input & aggregation of info relating to our regional fibershed system, specifically, land-management details and soil carbon baseline figures
- May 2017 Producer Meet-Up brought together Fibershed farmers and artisans in a face-to-face gathering
- Fire assistance & recovery to farm and ranch producers during and after the 2017 fire season



Above, Heather Podoll, Red Twig Farm (Photo by Paige Green); right, Imogene Keiser at Wild Oat Hollow (Photo by Kalie Ilana Cassel-Feiss)



Producer Program

BY MARIE HOFF

CONSISTING OF 81 farms, 52 artisans, and spanning 19 counties, Fibershed's Producer Program represents the backbone of the system we rely upon to both manage our collective climate and clothe our bodies. The beautiful, powerful, and often untold stories of the people, animals, plants—and relationships inherent therein—that interact to provide us this clothing and these ecosystem services are a core component to Fibershed's work. From alpaca growers to handspinners, to commercial sheep ranches and fabric production, Fibershed has documented these real people, raising public awareness of the environment and textile community to even the most urban of dwellers.

Calendar events, comprising everything from knitting classes—with an emphasis on local fiber—to soil health workshops, back up our producer stories. Offering a tangible way to interact with the



"Fibershed has helped me make my ranching dreams a reality. So much creativity and work go into creating a sustainable ranch that it is hard to manifest all of the goals and visions I have created. Fibershed steps in and helps me find and draw upon much needed resources to make all of my creative visions possible. I believe some of the greatest benefits Fibershed brings to its members is the manifestation of cooperatives among members and the creation and connection of support in all of our farming ventures. Through Fibershed I have been able to make my dream a reality and to believe that my vision is possible—and that is often the biggest challenge."

— SARAH KEISER, RANCHER
WILD OAT HOLLOW

fiber and the land, these classes and events invite a curious public to engage personally with the inner workings of the fiber community. These real life opportunities to dive deeper into the fiber and textile world provide an entrance point for people to learn more about the clothing they wear and the landscape they inhabit.

During May, at Skylark Ranch in Yolo County's Capay Valley, our Producer Meet-Up gathered together a diversity of producers, from fiber farmers of varying scale to local designers and crafters, providing direct communication and community engagement. News and updates on issues facing the local fiber system were addressed by members, as well as a showing of attendee's textile work. New connections were made and the seeds for future collaborations were planted as producers met and chatted in the cool shade of Skylark's barn.

[The Fibershed calendar is] a practical connection to a community I value more and more as time passes, and I love that I can rely on it to find opportunities to learn, interact with and support the people in the Fibershed movement."

- BETH DEBOER, ARTISAN ATTENDEE TO A WOOL PROCESSING CLASS POSTED ON THE FIBERSHED CALENDAR



Clockwise from top: Fiber Processing at Duckworth Farm (Photo by Paige Green), Producer Meet-Up at Skylark Ranch (Photo by Fibershed Staff), Llama at Macedo's Mini Acre (Photo by Kalie Ilana Cassel-Feiss), Kim Bethel at Downhome Fibers (Photo by Alycia Lang)



"Fibershed: connection, encouragement, education. Being a part of Fibershed has ROCKED MY WORLD! Living the life of a rancher can be lonely, isolated and extremely hard work! Fibershed has connected me with other producers and like-minded people. These contacts have given me great inspiration and joy. It is a wonderful feeling to be appreciated for the work that you do and love. Fibershed continues to educate and expose me to making good choices to improve my Earthly practices. I am forever grateful for this organization and the people who contribute to it."

- KIM BETHEL, ARTISAN
DOWNHOME FIBERS



Fire Recovery

COMPLETED:

- Communication with and between members for one-on-one support on the ground and in the moment during the month of October
- Three weeks of outreach for needs assessment
- Linking people with resources, including evacuation hosts, livestock transportation, local news and emergency center info
- 10% of Wool Symposium producer sales donated to the Fibershed Fire Recovery Fund, supporting Joshua Farm Shetland Sheep in Oroville, CA (Cherokee Fire)



Romney sheep at Wild Oat Hollow (Photo by Kalie Ilana Cassel-Feiss)

IN THE FALL OF 2017, wildfires began burning in Northern California. Affecting producers and their lands and livestock from Mendocino to Sonoma, Lake, Napa and Butte counties, thousands of acres of pasture burned over the course of several weeks. During the initial 3 weeks, Fibershed provided individual support and communication, checking in with members as the fires advanced, and asking the questions “How are you? What do you need? Where are you? What do your animals need?” Sometimes the answers were “We don’t know what we need” or “What do we need to know?” or “Are my animals in danger?” Many producers were without internet or power for varying amounts of time, or needed transportation help or safe places to take their animals. By reaching out to producers, Fibershed was able to link people and animals to resources, including livestock haulers, evacuation hosts, evacuation news and up-to-the-minute notices during a time when uncertainty and weather variability ran high. A shift in the wind could change things in a moment.

Afterwards, as people began to look towards cleanup and recovery, Fibershed conducted a needs assessment based on this “in the moment” outreach. Given the time needed for disaster assistance such as insurance or FEMA to cover costs, as well as the upcoming winter, we concluded that the greatest need was making funds quickly available to cover replacement hay for winter feed. With their pasture, barn, and winter feed burned, Joshua Farm Shetland Sheep had mouths to feed that couldn’t wait for an insurance check to rebuild their barn. Selling sheep in the winter, right before lambing season, would be a significant loss for the farm, as well as for their land management come the spring. Using the typical 10% fee collected from vendors at this year’s Wool and Fine Fiber Symposium, as well as cash donations from attendees, Fibershed contributed to over half the cost of Joshua Farm’s winter feed, enabling their recovery without the farm incurring any further losses due to lost available feed or sold pregnant ewes.

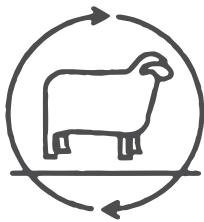
We live in fire country. As a part of building a resilient regional textile system, we must work together as a community when disaster strikes, and continue to reach out and support one another through these vital networks of producer communication and outreach. During the 2017 fires, Fibershed discovered new ways we could support, serve and sustain our textile networks, and thus our community’s longterm connection with the land.

“The Cherokee Fire changed life on our 4th generation family farm in a flash. Barns, fences and all water infrastructure gone. Three homes gone. All our winter hay and pasture gone. We were evacuated and the majority of the pastures burned. The support of Fibershed will allow us to keep our entire flock through the winter until spring grasses come.”

— CAROL ALBRECHT
JOSHUA FARM SHETLAND SHEEP

COMPLETED:

- 24,380 pounds of wool sheared straight from the sheep has been verified as part of Fibershed's regional Climate Beneficial verification program.
- The North Face, Coyuchi and Brooklyn Tweed have each developed direct ties and purchased wool from Fibershed member ranchers to bring Climate Beneficial Wool through their domestic supply chains.
- The North Face issued its first Climate Beneficial Wool Product—a wool beanie with a product tagline “Warm your dome, not the globe.”
- 102 sewers, designers, and small brands took part in the first successful cloth kickstarter made of 100% Climate Beneficial Wool.
- Shearing Audit has been drafted in collaboration with AWA (Animal Welfare Approved); this effort to include animal welfare within the Climate Beneficial framework is intended to deepen the transparency and connectivity between ranchers and end users.



Climate Beneficial Wool

BY REBECCA BURGESS



Coastal wool from Stemple Creek Ranch and Jensen Family Ranch (above)—both located in Tomales, California—is made into pillows for bedding (Photos by Paige Green).

CLIMATE BENEFICIAL WOOL is the wool derived from farms and ranches that have both signed off on and begun implementation of their Carbon Farm Plan.

Pricing for Climate Beneficial Wool provides the ranchers 70% to 85% higher prices for their fiber (based on commodity pricing). In 2017, just over 24,000 pounds of wool was sold for prices that support continued efforts to enhance carbon draw down on Fibershed producer member farms and ranches.

The first three ranches we are working with to develop these direct markets will sequester 117,082 of additional metric tons of carbon once each practice on their plan has been implemented. With this much carbon being drawn down into the rangeland and arable soils where sheep graze, the wool generated in these grass and cropland systems will carry a ‘net-negative’ impact; more carbon will have been drawn down than emitted during the production cycle.

The engine behind the Climate Beneficial Wool effort is seated in the consistent network building that we facilitate between farms, design students, general public wearers and brands; the basis for this networking effort includes providing an education about the regional nuances of the wool our ranchers produce.

This grass fed protein fiber comes in many types and textures, each sheep breed produces fiber that is slightly unique and each unique wool type has a best use. Different breeds come from different climates, and the particularities of the fiber are intricately linked to the type of climate that breed has evolved to. High micron count wool (aka coarse wool), tends to grow in cool, coastal zones as a response to fresh, green grass (high protein creates a thicker fiber) and damp soil that requires thicker hooves (which are made of fiber). End-users of coastal region Climate Beneficial Wool are developing durable goods such as compostable sponges, wool mattresses, duvet and pillow fill, and felt that can be used in all manner of goods, including

shoes. Designers working with wool from our region's higher and drier climates have been focused on next-to-skin garment creation, such as socks, sweaters, beanies and base layers. Each microclimate defines the use pattern.

For examples of the Carbon Farm planning process that articulates the road map that our producers use to create Climate Beneficial materials, click the links below to download a PDF:

- Bare Ranch Carbon Farm Plan (<http://www.fibershed.com/wp-content/uploads/2016/10/bare-ranch-cfp-2016.pdf>)
- Heart Felt Fiber Farm Carbon Farm Plan (<http://www.fibershed.com/wp-content/uploads/2018/01/heartfelt-fiber-farm-carbon-farm-plan.pdf>)

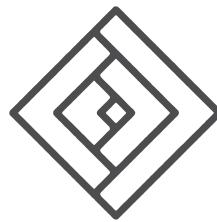


Above, Fibershed puts its soil baseline testing into tangible metrics to help raise funds for Carbon Farming (Photo by Paige Green). Left, Leslie Adkins of Heart Felt Fiber Farm with her spinners flock at her solar powered farm (Photo by Alycia Lang). Below, Lani Estill evaluates the readiness of her ranch-made compost prior to applying it on her cropland (Photo by Paige Green).



"I fell in love with the CSC wool twill at first sight. Its natural elasticity and softness has made it a pleasure to wear. Now, as I wear the garments I made, I have the added satisfaction of wearing a garment that is the result of our Fibershed community's joint efforts and skills and where community capital investment and place resources meld. Furthermore, by wearing CSC garments, I am a part of a movement solution to the devastating social, economic and environmental impacts of the textile industry as we know it. This makes me feel good and I call myself an activist!"

— PIA ANDERSSON,
MARIN SEWING LAB



Community Supported Cloth

BY REBECCA BURGESS



Clockwise from above, natural dye workshops offered through the Community Supported Cloth Prosumption Program bring skills and meaning to wearers by including them in the production process (Photo by Paige Green); Pia Andersson teaching sewing skills (Photo by Kalie Ilana Cassel-Feiss); Community Supported Cloth being sewn by one of the 102 home sewers engaged in the cloth program (Photo by Paige Green).

DURING THE SPRING of 2017, Fibershed developed the design and managed the implementation of a prototype cloth project that utilized our region's homegrown Climate Beneficial Wool. The project focused on building an understanding of what California wool can do in terms of producing quality clothing for humans.

Many hand knit garments have been made with this abundant fiber, but the question remained—could our wool be made into a fine woven cloth? After months of R&D, the answer was a resounding yes. We supported this prototype effort by issuing a 'cloth kickstarter' that we dubbed 'Community Supported Cloth.' One hundred and two designers, home sewers, and brands pre-purchased their cloth to mitigate economic risk for the rancher, yarn spinner and weaver (Huston Textile Company). The list of interested Community Supported Cloth participants grew to over three hundred. The cloth was woven, packaged and issued on May 8, 2017.

Complementary natural dye classes were offered to all those who pre-ordered.



Left, Community Supported Cloth recipe book—part of Fibershed's living library of place-based, Climate Beneficial, and 100% traceable textiles development projects; Below, Johnny Sanchez shears at Duckworth Farm (Photo by Paige Green).



This group of makers has become a community, and has begun offering sewing and natural dye classes to the general public and to themselves to support each other in what we've come to know as the process of 'prosumption'—a blend of conscious consumer and producer, all rolled into one. In the process of engaging as prosumers, the community has clearly gained a new sensitivity and respect for the processes that are undertaken to create a piece of clothing.

The Community Supported Cloth model also provided an avenue for feedback that deepens an understanding of the cloth's performance and wearability to the new weaving mill, which has opened

the door for an interactive design process—one that is very rare within global and opaque supply chains. The cloth is now in its second production cycle and being managed as a value-added product, produced and sold by Bare Ranch owner, Lani Estill.

Fibershed has completed a Climate Beneficial Wool textile recipe book based on the research and experimentation that occurred under the umbrella of the Community Supported Cloth Project. The textile recipe book showcases natural dyes that have been grown in the region and used on the cloth, as well as images of designs that have been cut & sewn with the textile. The recipe book will be shared as part of our growing living library of material documentation that we offer freely to design students, brands, and general public wearers.

Animal Welfare

In response to the need for consumer awareness and education, Fibershed developed a draft verification of proper shearing handling for ranches that are producing Climate Beneficial Wool. We worked with Animal Welfare Approved auditor Jen Burton on the scope and design of animal welfare during shearing. There is currently no agency with a standard for shearing practice. Fibershed will be advancing the shearing audit into 2018 to further promote transparency to the consumer public and to add a supportive and complementary animal handling component to our Climate Beneficial verification.

FIBERSHED's Wool and Fine Fiber Book has continued to be a valuable resource for deeper engagement and connection within the featured Northern California Fibershed, as well as more broadly in the textile community. For borrowers and users, the exposure to this diversity of fiber types and qualities within one geographic region provides a new awareness of the beauty and accessibility of regionally sourced fiber. Of respondents to the survey distributed to all *Wool Book* borrowers, 80% say they plan to buy fiber from a featured producer; 100% of borrowers agree that, "The *Wool Book* increased my awareness of the availability of domestic (United States) wool and fine fiber," including 60% who strongly agree with this statement.

COMPLETED:

- Ongoing outreach and education to apparel companies, artisans, designers, design schools and the general public through 21 loans of the Fibershed *Wool and Fine Fiber Book*, and 16 presentations by Fibershed staff highlighting this resource and how to use it
- Long-term loans of 'Wool Book' copies to four design schools have led to new or expanded emphasis on natural and regional fiber sourcing
- Exhibition/display copy of the *Wool Book* created for a four-month installation at SF Museum of Craft and Design
- Loans to Fibershed Affiliate groups supporting development of similar regional-based resources in other areas, including the *New York State Regional Yarn Sourcebook* that launched this year
- High quality digital scan of the textile sample pages is complete; full downloadable document will be posted to Fibershed's website in early 2018



Wool Book

BY HEATHER PODOLL

Several Fibershed Affiliate groups have expressed interest in creating a resource specific to their region inspired by this model, and loans of the *Wool Book* have supported this development. August 2017 saw the launch of the *New York State Regional Yarn Sourcebook*, whose makers were inspired by their interactions with the Fibershed *Wool and Fine Fiber Book*. Connecting New York clothing and textile designers with fiber resources throughout the state, the Textile Lab Fibershed has created a regional yarn sourcebook with a variety of wool, alpaca, mohair and cashmere yarns. This was a collaborative research project led by Laura Sansone, faculty at Parsons New School of Design, and Helen Trejo, a PhD student in the Department of Fiber Science & Apparel Design at Cornell

"*The Fibershed Wool Book* is an invaluable resource for sustainable, climate beneficial design. It gives designers (new and experienced) a tangible, touchable experience of the variety and possibilities for the necessary ethical future of textiles and clothing. It builds an identifiable narrative into the product you design from its many resources. And the most important thing it does is inspire those with a deep sense of responsibility to pursue a life's work in sustainable design. This book shows my students that their passion to design does not have to be beaten and molded by an environmentally destructive industry. It gives them hope and knowledge they will bring to their future employers to show them what is possible."

— JENINE HILLAIRE, INSTRUCTOR
FASHION DESIGN DEPARTMENT, FIDM



New York State Regional Yarn Sourcebook (Photo by Laura Sansone)

University. Parsons has purchased two copies of the *Sourcebook* for student use, and another copy will be available to designers through Laura Sansone's studio in Beacon, NY. The project was made possible by grant support from the College of Human Ecology, Cornell Engaged Graduate Research Grant and the New School Faculty Research Fund.

Twenty-one loans were completed or underway in 2017. Early in the year, an adapted version of the *Wool Book* was featured in a four-month exhibition on wool by fiber artist Janice Arnold at the San Francisco Museum of Craft and Design. Two design schools in San Francisco (California College of Art, CCA; and Fashion Institute of Design and Marketing, FIDM) incorporated the *Wool Book* into the materials collections in their libraries to facilitate access for all students, and have begun deepening their relationships with products and producers from the regional area. (See more details in the next section.) Other schools have borrowed the book for short term (Oregon College of Art and Craft) or long term (Santa Rosa Junior College; Parsons School of Design) use by specific faculty and departments.

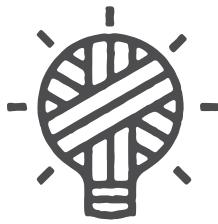
To further increase accessibility of the *Wool Book*, a high quality digital scan, including all of the fiber samples, has been completed and will be posted to the Fibershed website in early 2018.



Above, high resolution digital scans of *Wool Book* pages. Left, *Wool Book* pages laid out during a class at FIDM (Photo by Heather Podoll).

COMPLETED:

- We reached 35,294 individuals through our online education platforms
- Initiated our first peer-to-peer Carbon Farm Cohort; a small group learning environment that focuses on in-person visits, farm and ranch visioning sessions and peer-to-peer relationship building
- Provided in-person education to 7,093 number members of the general public
- Generated first regionally focused soil carbon draw down metrics for public sharing: 333 million pounds of CO₂ could be drawn down on 10% of the land we've tested, with a 1% increase in soil organic carbon
- Completion (not yet published) of literature review on the carbon sequestration potential of integrated crop-livestock (ICL) systems in semi-arid regions and the initiation of an ISV system survey and ISV system long-term monitoring trial
- Four Fibershed producer members in Northern California were awarded grants through the CA's Healthy Soils Program, including two who received technical assistance from Fibershed staff in preparing their applications
- Completed (not yet published) 80,000-word book for Chelsea Green publishing on the intersection of Fibershed economies and the Carbon Cycle



Carbon Cycle & Carbon Farm Education & Research

BY REBECCA BURGESS

OUR PLANET'S SOILS hold three times as much carbon as our atmosphere and four times as much carbon as the planet's vegetation. Soil represents the largest carbon sink that we humans have access to, and in many cases directly manage, via agriculture. Although it is the second largest carbon pool, it is estimated that our soils have lost 136 gigatons (a gigaton is a billion tons) of soil carbon. Bringing foundational awareness of the dynamic role of our planet's soils to renew lost carbon stocks and reverse climate change while producing natural fiber and dye is Fibershed's key educational pillar. We weave this foundational understanding of the power of soil carbon and the vital importance of living in balance with the carbon cycle into each of our programs and all of our projects; it guides our outreach to land-managers, designers, and general public 'wearers' and it impacts the direction of the citizen focused scientific research we engage in.

In 2017, Fibershed completed baseline soil carbon sampling on our first cohort of producer landscapes, allowing us, for the first time, to aggregate our own place-based soil carbon data and share it publicly. This included being able to present an exacting narrative of 'what our producers can do for the climate,' during our introduction of our state's Secretary of Agriculture, Karen Ross, at a December soil carbon legislative briefing.

Our aggregation of soil carbon data was shared with 500 people who attended our annual Symposia and Climate Beneficial Fashion Show.

Our own Citizen Science efforts in collaboration with the Gaudin Lab's processing and data crunching abilities has provided us a regionally focused understanding of what we can do as a community to offer solutions to the climate crisis. To provide context: within California alone, working lands make up 43 million acres, urban and suburban developments have grown to 24 million acres, and forested lands compose 33 million acres. Within our region of Northern California, Fibershed producers work on over one million acres of arable, range and pasture lands—all of which have an opportunity to greatly enhance carbon capture in a manner that restores lost carbon stocks.

In collaboration with UC Davis's Gaudin Lab, Fibershed conducted soil sampling on 10% of our managed land base. We determined that a 1% increase in soil organic carbon on 10% of our directly sampled soils would sequester over 333 million tons of carbon dioxide equivalent. We also determined that all of the soils analyzed within our producer community have the potential to increase soil organic carbon levels far beyond a 1% increase. Our research in 2017 yielded a direct road map for the carbon sequestering gains we intend to create through a combination of grassroots agricultural organizing, and collaborative and cooperative efforts with designers, brands, wearers and skilled artisans. We are working together at the grassroots level towards becoming one of our earth's vital carbon sinks.

In 2017 we engaged 7,093 individuals (in person) via our presentations, demonstrations and symposia, and 35,294 individuals through media with information and narrative that

highlighted the carbon cycle and the powerful role of Carbon Farming. We worked within the 133 members of the Northern California region to share the message of how Carbon Farming can beneficially impact our climate via presentations and one-on-one site visits with our producer members, and through the initiation of our first Carbon Farm Cohort, a peer-to-peer farmer and rancher network organized to support an initial six fiber and dye producing farms and ranches in our region. The Carbon Farm Cohort is a replicable design that we are developing for use by our 50 national and international affiliate communities. Each cohort member that is currently engaged with us will complete his or her own carbon farm plan within 2018 and work with peers to share in their learning processes.

Outside of our own geographic territory, Fibershed conducted site visits and in-person meetings with Hudson Valley based producers who are focused on economic development of regional fiber systems and the intersection of Climate Beneficial agriculture. The Hudson Valley is now moving towards a working model for Climate Beneficial fiber production based on efforts and organizational architecture spearheaded in our Northern California region. In person education with Hudson Valley farmers will continue in 2018.

Policy Update

\$5.23 million in grants were issued via California's Healthy Soils Program (HSP) this year, creating new opportunities both for Fibershed producers to gain implementation funds for carbon farming practices, and also for deeper conversations and collaboration to advance stronger infrastructure and policy for this work. Fibershed staff relayed state level program developments to the producer community and kept farmers and ranchers informed about HSP grant opportunities throughout the year.



Site visits to producers participating in the inaugural Carbon Farm Cohort provide an opportunity for hands-on education on carbon farming principles as Fibershed staff share resources and guide an understanding of the Carbon Farm Planning process, which is informed by each producer's vision for their enterprise, landscape, and livelihood (Photos by Jess Daniels).



We also fielded questions and offered application support. Four Fibershed producer members in Northern California were awarded grants through the HSP, including two who received technical assistance from Fibershed staff in preparing their applications. We contributed feedback to CDFA, based on our members' experience with the HSP process. Through engagement with CDFA's request for proposals for new practices to include in HSP, we advocated for expanded funding opportunities, including options for on-farm compost incentives, support for prescribed grazing and Integrated Crop Livestock Systems.



Above, Stemple Creek Carbon Farm Education Day; top, Climate Beneficial conversations at the Perennial Restaurant in San Francisco, including: The North Face, Annie's (Organic Mac & Cheese), and Numi Leaf Teas sustainability teams, plus Fibershed Executive Director, Rebecca Burgess, and Lani Estill of Bare Ranch.

At meetings and presentations with our partners at the Carbon Cycle Institute, the Marin Carbon Project and Resource Conservation Districts (RCDs) throughout the state, we shared practices and helped build capacity for new carbon farming projects as we also discussed how to collectively support new pathways to garner financial support for this work. It is increasingly clear that both market-based solutions and public policy-driven incentives are needed.

Integrated Crop Livestock Systems Research

Land conversion for agriculture is responsible for 15 to 18 percent of human emissions today. At the same time, both policy makers and scientists are concerned that we will need to significantly increase arable land productivity to meet the needs of nine billion people by 2050. In order to meet the material demands without harming intact ecosystems, we must enhance the yields on existing farmland. Stacking functions on existing agricultural lands through integrating livestock and croplands (agriculture that mimics nature) will offer an essential tool in the climate, fiber and food security tool kit.

Gaudin Lab – ICLS Annual Update

BY KELSEY BREWER

FIBERSHED is currently partnered with the Gaudin Laboratory at UC Davis, in ongoing research trials, analyzing the potential for enhancing carbon sequestration, ecosystem services and production co-benefits of integrated sheep-vineyard (ISV) systems in California. Throughout 2017, this work has included the completion (though not yet publication) of a literature review on the carbon sequestration potential of integrated crop-livestock (ICL) systems in semi-arid regions and the initiation of an ISV system survey and ISV system long-term monitoring trial.

The literature review, authored by Kelsey Brewer (Assistant Research Specialist – Gaudin Lab, UC Davis) and Dr. Amelie Gaudin, explores how agroecological and biogeochemical components of ICL systems may interplay with climatic variable to determine soil organic carbon (SOC) formation and stabilization dynamics in semi-arid regions (common throughout California). Some notable conclusions of the review highlight the limitations of semi-arid environments for SOC retention that include high temperature, low water availability and increasing salinity concerns. Nevertheless, the review concludes that, with proper

grazing and co-management practices, ICL systems could potentially provide a suite of production and environmental benefits that include enhanced aggregate stability, nutrient cycling, water storage, biodiversity, atmospheric carbon sequestration and yield resilience in semi-arid regions. It was further concluded that ICL mechanisms for these benefits include enhanced biomass production, biodiversity, and reduce soil disturbance when compared the simpler, more specialized crop production systems. The impacts of grazing specific practices were less understood, however an emphasis on controlling stocking intensity and rotational duration appear to be essential to promoting such benefits.

The ISV system survey project is a comparison study of four coupled vineyard sites (integrated and non-integrated neighbors) through Sonoma, Napa, Mendocino and Lake counties. Data collection from these eight sites will be used to analyze ISV integration impact on total organic carbon (TOC) and various SOC pools, nutrient

cycling and fertility, soil physical characteristics, and socioeconomic feasibility and barriers to adoption. These biogeochemical metrics will be cross-analyzed against grazing practices, plant community composition and total biodiversity, soil foliage cover, biomass production, and co-management regiments such as tillage and external amendment applications. The results will be used to inform a long-term ISV monitoring trial, taking place at the Napa RCD Demonstration Vineyard over the course of five years. This project will initiate ISV management onto previously un-grazed vineyard plots, to monitor annual shifts in soil quality, system productivity, ecosystem services and ecology. The ISV monitoring project should initiate in October of 2018.

Below, Integrated Crop and Livestock Systems at work—Fibershed Producer Kaos Sheep supports organic and regenerative practice management for perennial farming systems (Photo by Paige Green).



Presentations & Workshops:

- Taylor Stitch Wool Civic Launch Party
- CCA
- O'Hanlon Center for the Arts
- Cast Away & Folk
- Sonoma Community Center
- CCA class: Soil to Studio
- FIDM Ethical Fashion Show for Girls Inc
- UC Davis Textile Graduate Student Class
- Hudson Valley Wool Summit
- Parsons Sustainable Systems Class
- Redwood High School
- Spindles and Flyers Guild
- Solano County NRCS
- Chico State/Regenerative Agriculture Institute
- CCA Library: Soil to Studio Display and Lecture
- SEMAP Local Fiber Roundtable
- Learn about your Local Fibershed
- Central Minnesota Community Fibershed Meeting
- Barn to Yarn
- Huston Textile Company
- Regenerative Agriculture Institute, Chico
- California Climate & Agriculture Summit
- Swanton Ranch RCD Training
- Berea College/ Churchill Weavers
- Fibershed Affiliate Webinar
- Grazing School of the West Overview of Research
- Ogaard
- FAST Professional Development Sustainable Fashion Career Development Seminar
- Humboldt RCD Presentation with CCI
- Slow Food Nation
- Rush Ranch Carbon Farm/Economics
- Coyuchi Fibershed Marketplace Popup
- Urban Soil Summit

- Carbon Farm Education Day at Stemple Creek Ranch
- Brooklyn Tweed
- Climate Beneficial Fashion Gala
- Bioneers — Carbon Farm Workshop
- Sustainable Design Master Class
- CARCD Conference
- FIDM Design and Collection Development class
- Regenerative Economy Idea Hack
- Wool Symposium
- Turning Green Presentation
- Carbon Farming Partners meeting at Carbon Cycle Institute
- Climate Beneficial Education Event
- Daily Acts/Fibershed natural dye class
- Legislative Briefing on Healthy Soils at the State Capital
- FIDM Portfolio Presentation Day



Top, Loren Poncia of Stemple Creek Ranch tells his family history at a Fibershed documentation focused site visit; center, grand opening of Huston Textiles, the first commercial weaving mill to generate locally grown textiles from in California since the 1890s; left, Alisha Reyes—founder and operator of the new Maker Space, Fiber Circle Studio in Cotati, California—gives a spinning demonstration at the Fibershed Wool Symposium.

COMPLETED:

- Partnerships with California College of the Arts and FIDM student cohorts that included farm site visits, presentations on local materials and dyes, design evaluation and feedback, and more.
- Provided students with Climate Beneficial Wool batting for design challenge program showcased at local textile company showroom and provided material samples and resources for design library collections.
- Supported fiber system and textile economies research projects through a summer internship and ongoing engagement with the Rhode Island School of Design.



California College of the Arts students showcased Climate Beneficial Wool design prototypes at the Coyuchi Showroom in San Francisco. (Photo by Coyuchi)



Fiber & Design School Collaborations

BY JESS DANIELS

JUST AS OUR milling resources and cultural understanding of fiber systems have dwindled, so too has soil-based, natural fiber and local manufacturing education diminished in fiber and design programs around the country. We strive to serve students and educators alike with resources, materials, site visits and presentations that engender an understanding of our regional fiber system and ignite innovations for regenerative designs.

A course at San Francisco's Fashion Institute of Design & Merchandising (FIDM) on design and collection development began using the *Wool & Fine Fiber Book* as a primary resource to inspire their focus on incorporating wool and other animal fibers into student-designed textiles and collections. Fibershed staff visited design classes in August and November to present an overview of regional fiber, dye and textile systems; carbon farming and a Soil-to-Soil model for textile development.

"Beyond buying locally, I started to think about a whole other layer of specificity and connection to local production and market. There are new potentials for making and adapting within that same constrained set of parameters/system."

— CCA STUDENT FEEDBACK
FROM THE LOCAL FIBER INCUBATOR
PARTNERSHIP WITH FIBERSHED

A group of students from those classes accompanied their instructor to the Fibershed Wool Symposium in November, where several students procured materials for their class projects and collection prototypes. In December, Fibershed staff participated as invited industry evaluators in a day of graduating student presentations and evaluations. Deepening this valuable connection, we have started discussions about building opportunities for FIDM students to connect with local artisan and designer members of the Northern California Fibershed for internship positions, and have provided samples of Climate Beneficial wool batting and felt to FIDM's materials library.

Fibershed and The California College of the Arts (CCA) signed a Memo of Understanding in 2017 that provided the foundation for a collaboration that has continued and grown in breadth and scope into 2018. Fibershed staff hosted farm site visits for a cohort of CCA students who traveled from San Francisco to the Mann Family Farm in Bolinas, California, where the group met up with the farm owners and UC Davis Gaudin Lab junior specialist Kelsey Brewer.

Brewer performed soil carbon sampling with the students and farmers, and shared the method that Fibershed has developed for creating place-based biogeochemical life cycle assessments for local wool. Continued visits to the CCA campus by Fibershed staff occurred throughout 2017, with presentations and workshops for students focused on the carbon cycle and its relevance in eco-conscious design, the connection between wool quality and our region's microclimates, available natural dye sources and species identification, as well as hands-on guidance for engaging with the *Wool Book*. Students worked with eighty pounds of Climate Beneficial Wool that was provided by Fibershed producer members. Final projects created by these students included examples of furniture, art, home decor, garden design and clothing, and were



displayed at the design showroom of Coyuchi, a locally based sustainable textile company headquartered in San Francisco.

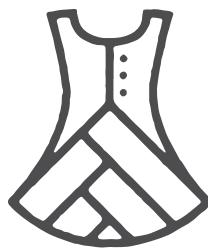
Farther afield, Fibershed staff supported regional fiber system engagement through a Rhode Island School of Design summer internship focusing on textile manufacturing (see National Mill Inventory section for detailed summary), and a presentation to the Sustainable Systems course at Parsons School of Design in New York City. We also engaged with Helen Trejo to support her dynamic research on regional fiber systems at Cornell University. Inspired in part by attending the inaugural Fibershed Wool Symposium, Trejo has pursued a PhD in Apparel Design with a focus on slow fashion farm-to-fashion in New York, co-created the *New York Regional Fiber Sourcebook* (see *Wool Book* section for a summary of this project), and this past year produced a Sustainable Fashion library guide for Cornell that included Fibershed reports on textile mill feasibility, hemp-wool blend textile recipes and biosphere-based indigo production.



Top, Students at FIDM presenting their textile and collection designs to Fibershed staff at the end of the term (Photo by Heather Podoll). Above, CCA students in the Local Fiber Incubator (such as Adelya Tumasyeva, shown here) incorporated hands-on learning experiences such as wet felting into their final Climate Beneficial designs. (Photo by Coyuchi)

COMPLETED:

- Hosted over 300 members of the general public for a sold out farm to fork and soil-to-skin event
- 15 head-to-toe regionally grown ‘looks’ were developed with 27 members of the design community
- Publicly launched the first line of Climate Beneficial Wool garments with our region’s first 100% regionally grown wool cloth



Climate Beneficial Fashion Gala

BY REBECCA BURGESS

THE CLIMATE BENEFICIAL Fashion Gala was the single largest event Fibershed has held to date. We gathered at Big Mesa Farm in Bolinas, California, to experience a runway of Climate Beneficial fashion pieces that were shared alongside a generous spread of farm-to-table foods and fermented beverages. Participants were able to learn and experience first hand the craft of flax-to-linen processing, plant and animal fiber spinning, weaving and natural dyeing—the demonstrations were peppered throughout the farm alongside members of the marketplace, who brought their artisanal and bespoke homegrown goods.

“The Climate Beneficial Wool Fashion Gala was a highlight of my life. So many people came together, from wool growers to processors, to designers and makers, for the common goal of producing Climate Beneficial Wool garments. It was an epic event.”

— LANI ESTILL, RANCHER
BARE RANCH, CALIFORNIA



Above, Industry of All Nations produced head-to-toe Climate Beneficial garments for the runway stage; left, regionally and regeneratively grown fibers and dyes provided a color and form palette expressive of our land, people, plants and animals for the runway looks. (Photos by Paige Green)



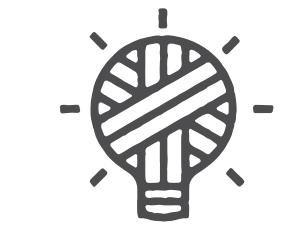
Many of the runway garments created by the 27-member designer community were made with the first finely woven Climate Beneficial wool that our state has ever produced. The project represents a strong potential for how we can grow value for protein fiber producers in our state with a material that has for too long been regarded as an economic by-product. The effort to develop regionally grown, Climate Beneficial garments not only restores economic value to regionally produced and raised fibers, but addresses the land management associated with those fibers.

Clockwise from above, natural dye demonstration with indigo and marigold; Fibershed Executive Director Rebecca Burgess introduces rancher Lani Estill and mill owner Laura Huston at the Gala; Climate Beneficial wool cloth was transformed into unique garments, created by a talented group of local artisans and designers, and worn here by the runway models. (Photos by Paige Green)



COMPLETED:

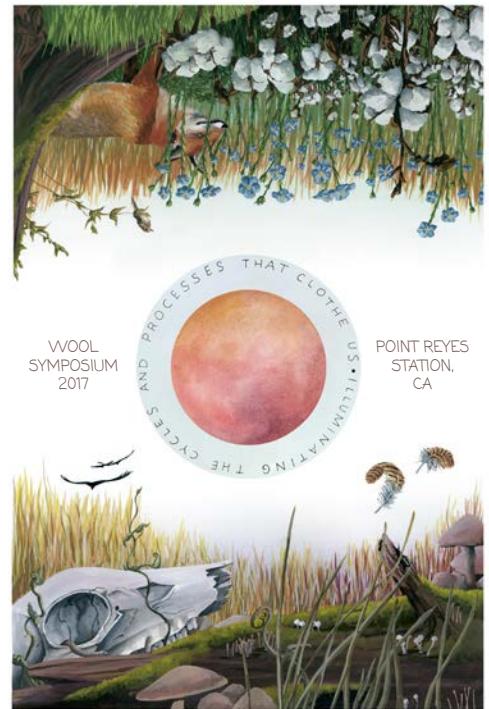
- Held our 6th Annual Wool Symposium for a sold out audience of over 150 individuals in Point Reyes Station, CA
- Hosted the general public for twelve free fiber & dye demonstrations and a free marketplace held by 29 of our region's farmers and artisans



Wool & Fine Fiber Symposium

BY REBECCA BURGESS

THE THEME of our 2017 Wool & Fine Fiber Symposium was 'Illuminating the Cycles and Processes that Clothe Us.' We hosted over 150 members of the general public, and live-streamed to audiences globally. The symposium focused upon sharing a series of presentations and panels that elucidated the global problem sets within the textile industry—including plastic microfiber shedding into our oceans, farmland and fresh waterways; mapping dye intermediaries within human biosolids from human sewage (that end



up on our farmland); synthetic biology (genetic pollution); and the global issues related to fresh water pollution and the mismanagement of carbon. For each global issue, place-based solutions were offered by grassroots organizers,



Top left, Rosa Novak demonstrates clay and earth pigment dyeing (Photo by Paige Green); top right, the resilience of nature, as depicted by artist Hallie Rose Taylor for the event's poster; above, the Bast Fiber Blending panel discusses the role of nettle, hemp and flax and the role that new textile recipes play in ocean health (Photo by Paige Green).

amplifying the message of exactly how the replication of decentralized, regional, transparent and regeneratively grown Soil-to-Soil value chains play a critical role in solving for significant problem sets within the industry at large.

The intended take-away from this year's symposium was to imbue our community with a positive local story within and globally contextualized message: In a world rapidly needing to transform its relationship with natural systems, Fibershed models offer direct, immediate and tangible solutions for global water supplies, carbon cycle imbalance, retaining genetic integrity, and personal health.



Videos of the full event can be viewed on the Fibershed website: <http://www.fibershed.com/programs/education/symposia-presentations/2017-wool-symposium/>

Above, Judith Ashley and Martha Kant share their homegrown naturally dyed, handspun yarn creations; left, the Fibershed Marketplace is free and open to the general public at the annual Wool Symposium; below, Gopal Dayaneni of Movement Generation gives a presentation on genetic editing and modification within the fiber system as Dana Perls of Friends of the Earth U.S. waits to present additional information on the topic (Photos by Paige Green).

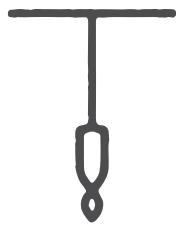


COMPLETED:

- 33 farms and ranches completed soil sampling for establishment of their soil carbon baseline
- Eight Producer members have completed consultation with the Gaudin Lab and Fibershed staff, committing to new practices and or management shifts that focus on ‘carbon as an organizing principle’
- Established a place-based scientific understanding of the current organic carbon content in our pasture and rangelands, perennial cropland and annual cropland systems



Kelsey Brewer from UC Davis's Gaudin Lab demonstrates how to take a bulk density sample at Meridian Jacobs farm



Citizen Science Protocol

BY KELSEY BREWER

OUR 2017 EFFORTS with the Citizen Science Protocol concluded with 30 network producers completing their baseline carbon analyses and 3 more producers currently under processing. Many producers submitted soil samples from multiple, distinct production fields that were delineated through the use of the Citizen Science Protocol guidelines and based on uniformity of management practices and landscape characteristics. The land-use categorization of these producer fields includes 36 pasture, 7 annual cropland and 2 perennial cropland fields. Additionally, 8 out of 30 producers submitted samples from adjacent “naturally managed” landscapes, for use as a control in cross-referencing management impacts on carbon content in their production fields. Up through the end of 2017, all results for completed analyses have been returned to the 30 participating producers. Of those producers, 21 have engaged in a follow-up phone conversation with Kelsey Brewer (Assistant Research Specialist – Amelie Gaudin Lab, UC Davis) that is intended to clarify results and broadly discuss applicability of Carbon Farming concepts within the scope of each producer’s management goals.

Average soil carbon content (of all producers), cross-referenced against soil texture, elicited an expected response, characterized by sand-dominated soils averaging the lowest carbon content and clay-dominated soils averaging the highest. Additionally, cross-referencing soil carbon content with land-use also

“I received the first set of results a few months after the testing and it was revealed that the SOM of the soil tested in this particular 40 acre field was 2.6%. Which is not high for soils back east, or even in the Midwest, but for our arid western lands, this was a marked increase over the expected (and what my soil was registered as in the historical data)—1% being normal for my soil type (according to the USDA). The integration of wheat, sheep grazing, cotton and polyculture cover crop plantings are supporting an increase in my soil organic matters levels—this is very exciting to me, and something I didn’t know was happening until I received my soil results.”

— SALLY FOX
VRESEIS LIMITED

generated an expected response, with the highest carbon contents found in pasture/rangelands, followed by perennial cropland and lowest in annual cropland. When compared to control samples, we saw that cropland carbon losses appeared to be much higher than rangeland losses. This is another trend that we anticipated, however, due to the low number of control samples submitted, we cannot validate the accuracy of this assessment. Additionally, average carbon contents decreased with depth in the soil profile in an expected manner. However, the average carbon variance, between different soil cores in a given sampling area, was relatively high (between 5.771% and 19.766%). We saw that this variance was significantly higher in pasture/rangeland systems compared to cropland, which might be due to higher landscape heterogeneity resulting from less intensive management practices.

"Fibershed's Citizen Science Program helped us understand how our work was impacting the soil on our farm, as well as the whole spectrum of soil types and SOM values across the land. It's become the starting point for the development of our Carbon Farm Plan."

— GOWAN BATIST
FORTUNATE FARM



Clockwise from above, John Ham and assistant take soil samples at Kirabo Pastures; Kelsey Brewer from UC Davis' Gaudin Lab demonstrates soil sampling to Fibershed members; Hazel Flett takes soil samples at Bodega Pastures



We also saw that this variance increased with soil depth, which likely indicates human error in the sampling process, where topsoil falls into the sampling pit and contaminates samples at further depths below.

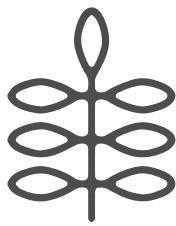
While subsequent sampling events will be required in order to develop understanding of management impacts on soil carbon content within the Fibershed network, preliminary statistical analysis has provided some insight into the potential of the Citizen Science Protocol to accurately measure landscape carbon. Adjustments to the protocol, generally through the provision of higher clarity and revision of producer comments, will be addressed for sampling in 2018. The goal is to maintain subsequent bi-annual sampling events for the purpose of informing producers of some carbon consequences of their management regiments. In the interim, an interactive integrated website is under development, with plans to host information on land-use, management strategy, soil type, and carbon sequestration monitoring for



all participating Fibershed producers. Additionally, we hope to develop these datasets into scientific research publications, where this information may aid in the broad understanding and application of specific agriculture practices for long-term soil carbon sequestration.

COMPLETED:

- Completed and disseminated *Indigo: Sources, processes and possibilities for bioregional blue*. This brief contextualizes plant-based blue within a broad framework. (<http://www.fibershed.com/wp-content/uploads/2017/08/indigo-sources-processes-possibilities-june2017.pdf>)
- Completed and disseminated *Indigo Planting & Harvesting*. This document aims to support regional farmers in their efforts to bring indigo farming forward as a viable economic option. (<http://www.fibershed.com/wp-content/uploads/2018/01/indigo-planting-harvesting-nov2017.pdf>)
- Completed and disseminated *The Production of Indigo Dye from Plants*. This report presents a study of the technical, environmental and economic factors involved in indigo dye production from *Persicaria tinctoria*, with the aim to support increased farm-scale indigo production in the Northern California fibershed and beyond. (<http://www.fibershed.com/wp-content/uploads/2017/12/production-of-indigo-dye-dec2017.pdf>)



True Blue

BY NICK WENNER

IN 2017, the True Blue project supported the emergence of bioregional industries for the production and use of natural indigo dye. Activities included field research for practical and regenerative farming practices, a landscape assessment on current dye practices (synthetic and natural), and in-depth analysis and experimentation on planting, harvesting and pigment production from plant-based indigo sources. The results of the work are presented in three reports: an overview of indigo and blue dyes, a report on planting and harvesting considerations and strategies, and an in-depth analysis and feasibility study for water-based and compost-making pigment production methods. These documents were issued freely to the general public in alignment

The Production of Indigo Dye from Plants
Nicholas Wenner
DECEMBER 2017

FIBERSHED
Local Fibers, Local Dye, Local Labor

with Fibershed's mission to both provide open source education in natural fiber systems and to advance textile research efforts. These documents are useful for students, practitioners, rural economic development agencies, teachers and those who are just getting involved in the subject of plant-based dyes.

The first report gives a groundwork for the reader, providing a broad overview of plant-based indigo processes within a modern context. The second report aims to support regional farmers in their efforts to bring indigo farming forward as a viable economic option. It gives a detailed review of the planting and harvesting processes in indigo dye production and considers how to scale production using appropriate tools and technology. It includes equipment recommendations for a range of capital costs and for scales of operation from backyard gardens to multiple acres. The third and final report presents a study of the technical, environmental and economic factors involved in indigo dye production, with the aim to support



Left, indigo research at Open Field Farm in Petaluma, California, led by Craig Wilkinson, shown here doing hand-held harvest mechanization testing.

increased farm-scale indigo production in the Northern California fibershed and beyond. In this report two main approaches to dye production—compost and water extraction—are presented. The processes are discussed in detail, and particular designs are proposed and then modeled and compared on economic bases, illuminating paths forward and providing a foundation for conversations between interested producers and potential investors.

By producing these reports and building relationships between local producers, the True Blue project laid the foundation and provided a road map for a vision where communities are supported and clothed in part through the local production and use of natural indigo dyes. Producers and other interested parties may use these resources to build toward that vision, both locally and abroad.



Clockwise from top left, North Face's Climate Beneficial Wool Beanie, dyed in Northern California grown indigo; True Blue Team studies the mechanical details of a water extraction facility for small-farm scale extraction of indigo pigment; True Blue Team studies with chemist and plant dye expert Michel Garcia at Slow Fiber Studios in Berkeley, California—the team generated a new green chemistry solution for one-day fermentation of composted indigo leaf.

COMPLETED:

- North Carolina hemp field trials were completed for the first time in 80 years
- First open source blue-prints for farm scale hemp processing completed and issued publicly
- First hemp-to-cloth hands-on training held in Kentucky since the legalization of the crop
- Excerpt from *Fibershed* (the book, completed in 2017, to be published in 2018):

“Hemp is known to increase wheat yields; research from the Hunter Valley in Australia has shown up to 20% higher yields when it is planted in rotation with hemp. In the United States in 2015, farmers grew 56 million acres of wheat, most of which was grown in the winter months, which leaves the possibility open for rotating with a summer hemp crop. If we were to conduct a thought exercise focused upon assessing what it would look like to add hemp into the wheat cycle within the United States, we could assume yields of an additional 112 million tons of hemp fiber flowing into our U.S. based textile system (if we assume a yield of two tons of fiber per acre). If these same croplands were integrated with fiber producing livestock (sheep and goats) to graze and clear the fields, cycle nutrients and support the ability for the farmer to be able to plant the next crop using conservation and or no-till strategies, this would support known soil health enhancing practices while adding an additional 950,000 tons of millable protein fiber into the fiber system, based on low stocking rates of seven wool producing animals to the acre. The 950,000 pounds of wool assumes 50% of the wool would be lost in processing (a normal loss for industrial milling processes, as the vegetable matter and manure are washed away). It could be fairly easily assumed that this integrated agricultural system would healthfully yield wool, hemp, wheat, lamb and dairy, and would generate an additional 113



Citizen-led Hemp Fiber Systems Research

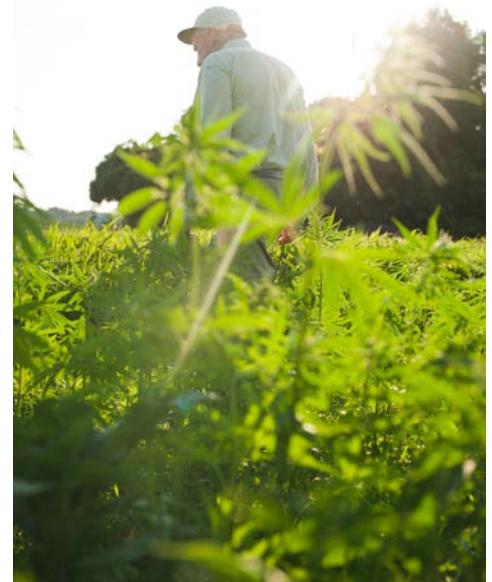
million tons of natural fiber per year in this country alone, without converting any additional land to agriculture. That could equate to approximately enough fiber to produce 23 billion one-pound garments (assuming weight losses to the fiber throughout the milling process). Nationally speaking, we don't consume that many garments per year, which in turn means that we would have ample room within this scenario to reduce the acreage planted with hemp significantly and still produce enough natural fiber to clothe everyone in the country with compostable, organic and non-toxic garments.” – REBECCA BURGESS



North Carolina Hemp Farming

BY TYLER JENKINS

THE FIRST ORGANIC field trial of industrial hemp was planted in Northeastern North Carolina in early June of 2017. Prior to the project beginning we were tasked with sourcing certified industrial hemp seed, a license from the state of NC, and land for



Tony Kleese of the Earthwise Organics heirloom seed farm stands in the 8-varietal hemp trial site

the trial site. Seed was acquired from Italy, and close working relationships with an international seed supplier, the NC Department of Agriculture, and the DEA were leveraged to ensure delivery. Multiple legislative and market realities delayed timely delivery of seed; however, once it arrived, we were able to plant in less than 72 hours. Partners in this project included the Northern California Fibershed, Bountiful Backyards (an edible landscaping company), Earthwise Organics (organic systems guru in the Southeast US), Homegrown Agriculture (a bold and diversified farm in the middle of large factory farming country of Eastern NC), Anna Carson DeWitt (Durham, NC photographer), and Tyler Jenkins (project organizer and organizer of Commonspace cooperative).

We observed the hemp field trial site throughout the summer and documented a variety of findings on the eight varieties we were able to trial. We had decided to seed at a very low per acre rate—around 10 pounds per acre—so that we could observe differences in each variety within the quarter acre plot. This area of Eastern NC has clay soils, with the exception of sandy loams in the

alluvial flood plains. Even with the late planting, the crop grew to an average height of four feet over the course of two months. We had an unusually hot and dry summer in the state, with a few downpours late in June and one in early July. The hemp crop thrived in the dry conditions. One interesting insight was the number of native bees attracted to the flower of the plant. We observed insects we had not seen before in our fields. We harvested plants in August, and were able to harvest 50 pounds of plant fiber to process further for textile development.

Organizing the trial allowed us to not only study the characteristics of the eight different varietals, but also allowed us to understand the possibilities and barriers for each stakeholder along the value chain. The farmers were able to assess the time and risks involved in acquiring a license and preparing land for a successful trial. We were able to take these hemp stalks to local makers who have existing market segments in local fiber that are excited about integrating hemp and hemp blends into their products. These artisans are now engaged in helping us understand what kind of value-addition is possible, and what needs to happen to further refine the material. Our community of stakeholders has a keen interest in how utilize cottonized hemp fibers into larger market systems. In short, this trial allowed us to “pilot” two ends of a supply chain, work out some of the wrinkles and loose ends, and prepare ourselves for a seed-to-market project in 2018. Some goals we have for the next stage are to increase the visibility of the crop, our partners and the local fiber system; to bring a small, modular processing unit from retted fiber to spun yarn to North Carolina; and to market a product utilizing a replicable and comprehensively carbon negative value chain to do so. We look forward to doing and sharing great things in our great state in the next calendar year.

Colorado Hemp Processing

BY ARNIE VALDEZ

IN 2017, Rezolana Institute began its third year of collaboration with Fibershed. In February, The Institute hosted Fibershed’s Executive director, Rebecca Burgess, and Growing Warriors Executive Director, Mike Lewis, at our South Central Colorado farm. The team reviewed farm-scale hemp fiber processing machines with an eye for creating open source blue prints for simple machines that farmers can use to separate seed heads from stalks, and also test the quality of the fiber from their fields.

By the fall of 2017, after the harvest, Rezolana completed two sets of open source plans and worked with Fibershed to distribution them online. We will use the plans at future in-person workshops to support participants in learning how to build their own processing equipment. In addition to building the hemp breaks, Rezolana collaborated with Fibershed to plant an acre plot of cottage scale hemp. Mike Lewis assisted us by obtaining Colorado seed from a grower in Wray, Colorado. Twenty pounds of Futura seeds were used to plant the field. Fibershed assisted with the purchase of compost for the hemp plot and with cover crop seed for five acres. Prior to planting, four soil samples were obtained for carbon testing at the UC Davis’s Gaudin Lab.

Planting occurred in late May with harvest in early September (Planting report: <http://www.fibershed.com/wp-content/uploads/2018/01/SLV-hemp-research-2017.pdf>). In addition to the fiber that we’ve produced on our farm, we have also used the hurd (woody part of the plant resulting from the decortication of the textile fiber) for manufacturing earthen blocks composed of soil, stabilizer and hemp shiv. Rezolana Institute presented the results of our block experiments in a paper and presentation for the 2017 Earth USA conference held in Santa Fe in late September. Fibershed assisted



Arnold Valdez of Rezolana Institute in his hemp and heirloom corn and bean fields

“Fibershed has been a key organization for us in the effort to integrate fiber systems into our traditional farming methods. 2017 was a very productive and successful collaborative effort. The building of the hemp breaks and dissemination of the information to interested groups and cooperatives was far reaching, serving to increase the network of hemp and fiber crop potential for small farms. Rezolana Institute benefits greatly by having active partners and resources to assist with their efforts in promoting sustainable approaches to farming and small scale cottage industries.”

— ARNIE VALDEZ
REZOLANA INSTITUTE

Kentucky Hemp and Fiber Systems

BY SAMANTHA HAMLIN

IN 2017, Appalachian Transition fellow, Sam Hamlin, worked with Fibershed and The Community Farm Alliance to conduct a landscape assessment of the natural fiber sector in the Appalachian counties of Kentucky. The report reflects information gathered from over 35 fiber farmers across Kentucky and dozens of others across the regional fiber supply chain. The report includes background and context for the current economic reality surrounding the natural fiber industry; stories from Kentucky farmers, mill owners and artisans; a supply analysis; a compilation of regional fiber processing information; identification of challenges across the supply chain; and recommendations for how to strengthen Kentucky's natural fiber sector.



with the creation of a poster illustrating the manufacturing process and results of the block trials.

Rezolana Institute, also known as Rezolana Farm, is a community-based operation that is actively engaged in sustainable farming techniques. The goal of the farm is to grow heirloom crops, industrial hemp and ancient grain trials within a locally based, low carbon footprint. Most of the farm work is conducted with vintage farming equipment and hand labor for weeding and harvesting. The farm is gradually acquiring infrastructure such as season extender hoop houses, water conveyance systems, composting, and hand operated equipment for hemp processing.



Open Source Hemp Break Plans

<http://www.fibershed.com/wp-content/uploads/2016/10/table-top-hemp-break-plans.pdf>

<http://www.fibershed.com/wp-content/uploads/2016/10/steel-roller-hemp-break-plans.pdf>



Top, Growing Warriors, Rezolana and Fibershed Executive Directors meet to discuss cottage industry and rural economic development strategies at the Rezolana Institute in San Luis, Colorado, and center, the hand-built roller hemp break was studied as a model to create open sourced blueprints for on-farm hemp fiber testing and rapid assessment of fiber quality (Photos by Paige Green). Above, structurally sound hemp bricks are made with the remaining hemp hurd left over from fiber processing (Photos courtesy of Rezolana Institute).

Here in Kentucky, people have seen firsthand the impacts of the globalization of the textile industry. In small towns in Central Kentucky like Mt. Sterling and Carlisle, entire clothing factories left in the early 2000s, leaving hundreds out of work and whole small-town economies in a state of crisis. However, Kentuckians are resourceful, creative people with a legacy of textile and apparel creation that originated long before the advent of assembly plants. Kentuckians have a long history of creating agricultural-based textiles as well as artisanal creation of woven goods such as blankets, quilts, rugs and clothing. Fiber crops, such as hemp and flax, have been grown in Kentucky to produce twine, rope and clothing for over 100 years, and farmers have been shearing sheep for wool for generations. With the rise of the conscious-fashion movement and consumer demand for sustainably-produced, locally-sourced textile items, farmers, fiber processors and fashion designers face possibilities of putting Kentucky on the map in the international natural fiber textile and apparel sector.

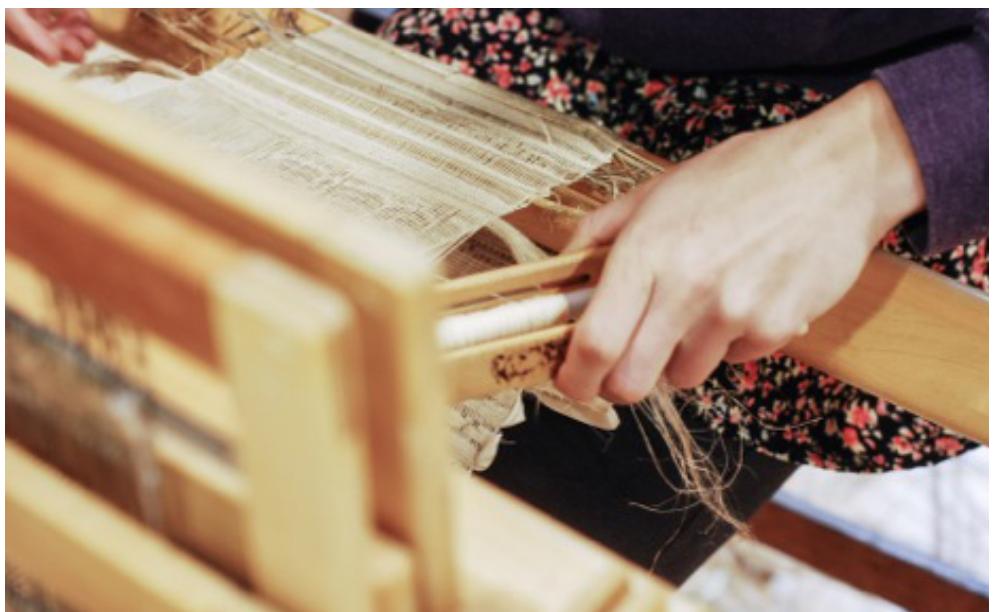
To download the full report produced in 2017: (<http://www.fibershed.com/wp-content/uploads/2017/12/Woven-in-Kentucky.pdf>).

Kentucky Hemp American Flag Update

FIBERSHED worked with Livingston Kentucky based Healing Ground Farm this spring on the completion of two full size, naturally dyed, homegrown hemp fiber American Flags. We worked with Marlie deSwart (a member of Fibershed's board of directors) on the development of the spinning, and with Leslie Terzian (one of Fibershed's weaving specialists) on the creation of a new weft structure for the flags. The flag project was designed to gather data on an exact number of artisan production hours required to complete one flag. This action-based research has been provided to Healing Ground Farm as a means of assessing their interest in developing an artisan based production line within the community of Livingston.

Retting Research Update

KENTUCKY STATE UNIVERSITY's hemp research continued in 2017 and is now in its second year with Dr. Shawn Lucas. Dr. Lucas's work is focused on the analysis of soil carbon changes related to the dew retting of hemp stalks. Dew retting is a time honored method for removing lignin and pectin from the fibers naturally, and does not require external heat, water or synthetic compounds. This method has traditionally provided farmers the ability to add value to their harvested stalks directly from the natural microbiology within their own fields. Initial results from Dr. Lucas's project show enhanced soil fauna populations and direct changes in



soil organic carbon levels related to 17 and 22 day retting cycles. Preliminary research based on two years of data indicate that traditional field retting of hemp probably contributes to carbon sequestration in soil and may help to mitigate carbon losses due to removal of residue. Fibershed has processed one set of Dr. Lucas's stalks with technology partner BastCore. Initial feedback from BastCore was that the stalks decorticated (separated fiber from wood) easily, using mechanized machinery. Further evaluation will analyze dew retting's impacts on the degumming process; degumming removes pectin and lignin fully from the plant fiber, and is generally done with water and alkalinity. Researching the correlation between dew retting and soil health supports Fibershed's textile research mission, which is to develop scientific rigor around what are ancient agro-ecological methods.



Above, close up of dew retted hemp weaving experiments in Livingston Kentucky; below, hemp retting in the field.

Hemp Agriculture & Hands-on Processing Course

ON THE 21ST AND 22ND OF APRIL, Fibershed spearheaded, organized and co-hosted a hemp weaving and textile arts class in Livingston Kentucky. The class was kicked off with presentations at Berea College where resident weaving teachers shared the history of textile production in the Eastern Kentucky region. The hands-on portion of the class was taught by Leslie Terzian (weaving), Kacie Lynn (hand-spinning), and Mike Lewis (hemp breaking, scutching, hackling). The class was designed to enhance skill-building and hands-on knowledge of hemp fiber processing. These are skills that have been lost from the landscape in the last 60 to 100 years during the federal ban on hemp agriculture. Developing advanced textile processing systems will require a fiber literate populace. This class was designed to support that very effort, and begin the road towards more significant capital investments in the community that will scale hemp fiber processing to a level that will one day sustain the region's farms in both food and fiber production.



Minnesota Hemp Project

BY MADDY BARSCH

Since initiating the Minnesota Hemp Project in June, there has been tremendous progress and invaluable insight gained into the making of a yarn blend from hemp and protein fibers. A 30-35-35 blend was chosen for the prototype yarn consisting of 30% Minnesota hemp, 35% Minnesota wool, and 35% Minnesota alpaca. As the project coordinator, I began by carefully selecting fibers to blend with the Minnesota-grown hemp, looking at the quality of the fiber and the ethics/practices surrounding the management of the farmland and animals. I chose wool from a local, family-owned farm that raises Cormo sheep on pasture,

and the alpaca was selected from Rach-al-paca fiber mill, who would also be processing the yarn.

As I waited for the fibers to move to the top of the mill queue, an opportunity to travel to Nebraska to visit John Lupien and his hemp fiber processing team at Bastcore, arose. This visit proved to be an important step in developing clear technical spec communications between our plant and animal fiber know-how. I was able to bring forth clear details related to my experience as a wool and

alpaca miller and share those insights with Lupien, as a means to ensure we are doing everything we can to streamline with BastCore's emerging hemp processing design and vice versa. The last batch of hemp that we received in mid-November was much closer to specs required for our equipment: length, texture, and overall cleanliness of the hemp fiber was greatly improved.

At the end of November, Rach-al-paca (our Minnesota mill), was ready to begin processing. The hemp fiber has now gone through the machinery resulting in a smooth milling process thus far. The hemp fiber has added remarkable strength to the blend and is in the process of being spun in the coming weeks to achieve the yarn weight desired for the project. Rachel and I see great potential for the future of hemp as John and his team at Bastcore continue to make improvements in the consistency and quality of the fiber.



Top left, Minnesota grown hemp was processed by BastCore in Nebraska and shipped to the Three Rivers Fibershed for blending (Photo by Jess Daniels). Top right, a 30-35-35 ratio of hemp, wool, and alpaca sourced from Minnesota family farms was blended on the carding and pin-drafting equipment at Rach-Al-Paca Fiber Mill. Left, the final stage of hemp-blend yarn creation, spinning, is underway at Rach-Al-Paca mill (Photos by Maddy Bartsch).



Hemp Textile Blending & Retting Research

COMPLETED:

- Three new wool mills have successfully blended their first wool and hemp blends, including Mora Mill in New Mexico, Rach-al-paca in Minnesota, and Mystic Pines in Arizona
- First completed knit fabric swatches utilizing multiple and varied ratio blends of wool, alpaca and hemp
- Completed first hemp blending textile research books for public dissemination

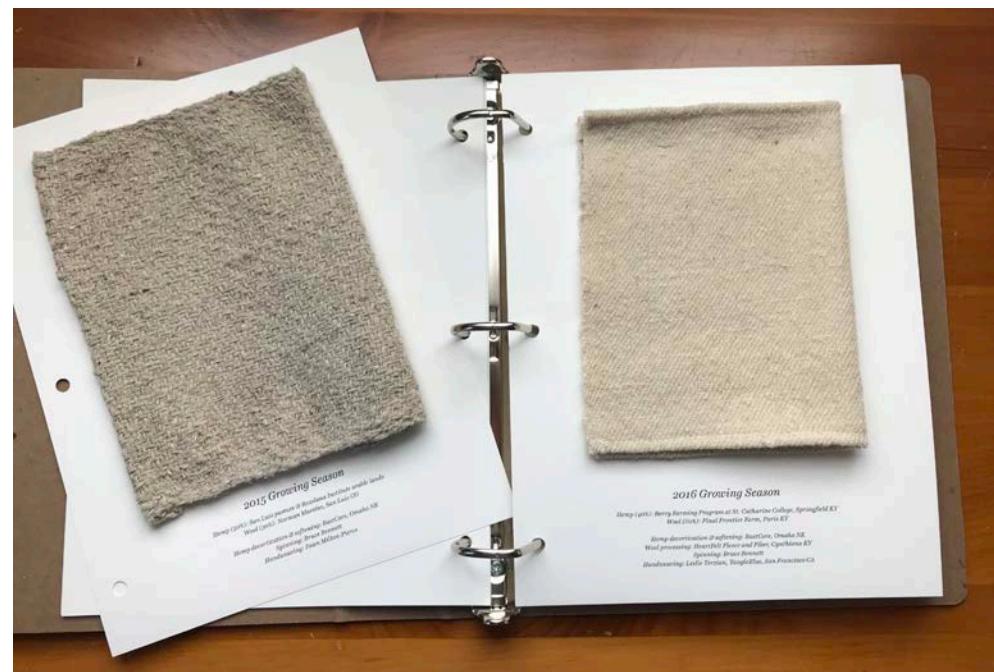
FIBERSHED has worked with multiple research focused entrepreneurs since 2014 in an effort to ecologically process hemp to remove the pectin and lignin in a manner that preserves the fiber's strength while allowing it to be processed on the equipment currently in existence and operational within American textile mills—all of American equipment is currently designed to process hemp and cotton. Our effort to blend hemp & wool has yielded some beautiful (yet early stage) results in 2017.

Hemp Textile Recipe Books

BY REBECCA BURGESS

FIBERSHED has archived its hemp and wool-blending textile research efforts over the last two years. We have recently created a series of textile recipe books for design students, brands and the general public. The goal of these five recipe books is to loan them out freely as a means to enhance an understanding of

both the possibilities and research gaps within natural fiber blending textile development. The books will live as a growing library of textile samples that we can place our open source recipes for hemp, wool, alpaca (and potentially other bast and protein fibers), for all those seeking information on how plant and animal fibers function in symbiosis to create durable, antimicrobial and water repellent cloth.

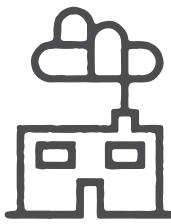


COMPLETED:

- Database, report, and research framework shared in consultation to support development of textile economies projects in three geographies
 - Supervised a summer internship for Rhode Island School of Design student focused on New England milling narratives and supply chains
 - Mill map and database updated with openings and closures
 - End-user feedback gathered from designer education events, producer meet-up, and Affiliate conversations
- A SURVEY of the textile manufacturing landscape, Fibershed's National Mill Inventory provides open-source data on supply chain stakeholders to farmers, designers, researchers and curious community members. Launched in late 2016, the interactive database serves as an exploratory tool and builds a bridge between fiber production and end use.

IN 2017, the National Mill Inventory nourished the development of textile economies research projects across four distinct geographies. In the Pacific Northwest Fibershed, the Mill Inventory research and data organizational approach informed a partnership with Ecotrust, a natural resource mapping organization, toward a cartography project of the regional fiber system as a whole. We also provided the Fibreshed Melbourne organizers with guidance and our research methodology to aid in their own form of asset mapping and database creation.

The National Mill Inventory serves as a helpful entry point for exploring milling on a local or larger scale, whether in a research context or a supply chain development scenario. With the goal of moving more Climate Beneficial Wool into the marketplace, Fibershed's Yarn Incubator project has used the National Mill Inventory Explorer tool to identify appropriate potential milling



National Mill Inventory

BY JESS DANIELS



partners, using the map filters to select corresponding offerings and scales of work.

The Mill Inventory and the themes unearthed in the research process have seeded academic interest as well. A research team from University of Wisconsin, Madison, led by Marianne Fairbanks, assistant professor in Design Studies, has used the Explorer tool and report as foundational guidance for a forthcoming project to "assess opportunities to strengthen the local fiber system" in the Upper Midwest. We look forward to continuing to share contacts and insights with this and other textile milling research projects through the lens of National Mill Inventory consultations.

Over the summer, Fibershed also supported a research-focused intern from Rhode Island School of Design, Emma Werowinski. A New England native, Emma wondered why her textiles education spoke only of milling history and not mills present, and set out to understand current manufacturing capabilities. Beginning with the National Mill Inventory database, report and survey results, Emma was able to jump into the project and create

"In history class I was taught that the textiles industry in New England was dead. Now in college studying textiles, I am frustrated by how little I have learned about the textiles manufacturing process, and how little I could discover by doing research online. This project grew out of my desires to learn more about the current capabilities of the textile industry in New England from fiber farm to finished product. Is it possible to develop small to mid-scale New England made products? How much fiber does this region produce every year? What happens to old manufacturing equipment when mills go out of business?"

— EMMA WEROWINSKI, RISD TEXTILES
BFA STUDENT AND SUMMER INTERN

a tailored survey that dove deeper into place-based exploration. With supervision and project management overseen by Jess Daniels, Emma created an inspiring infographic, a useful database of textiles manufacturing capabilities, and an executive summary report titled *The Textile Industry in New England is Not Dead*. The materials have been shared, discussed and refined in collaboration with the South Eastern New England Fibershed (based in Massachusetts and Rhode Island), and will be incorporated into their forthcoming website.

Through presentations to designers, Fibershed Affiliate communities, and conversations with Producer members, we have gathered insightful feedback and awareness for how the National Mill Inventory can be utilized to its full potential. This information will lay the groundwork for more guided 'tours' of the Explorer tool, narrative development from the report, and resource creation to continue to illuminate the pathway from raw fiber to finished product.

The New England Textiles Industry Today

New England was once the center of textile production in the United States. This production has dramatically decreased since the 1990s because of competition from foreign imports. Today, what is left of the textile industry has shifted south to North and South Carolinas where labor is slightly cheaper, and the number of mills in the US has shrunk dramatically.

But this is not a sad story, and the United States textile industry is far from dead. Many mills continue to operate combining modern equipment and techniques with vintage equipment.

KEY

- ★ Interesting Facts
- Historic Textile Cities
- ➡ Textile Production Process

map is not to scale

Prepared by Emma Werowinski as part of a RISD Summer Fellowship supported by Fibershed

ANIMAL FIBER

Natural textile fiber that comes from an animal like wool, angora, alpaca, mohair, llama and silk. Animal fibers are the most abundant fiber found in New England.

CELLULOSIC FIBER

Natural textile fiber that comes from a plant like cotton, flax/linen, or hemp. New England does not have the correct growing conditions for most plant fibers.

MANUFACTURED FIBER

Man-made fiber that is made in a mill like viscose, polyester, rayon, or many others.

CLEANING

Animal fibers must be cleaned before they can be spun into yarn to remove natural grease, dirt and other impurities.

SPINNING

Process of twisting prepared textile fibers together to create a continuous length of yarn.

Hank / Skein

Finished length of yarn wound and looped with two ends tied together.

Cone

Finished length of yarn wound onto a cone.

★ Many mills in the spinning and fabric production stages rely on guaranteed work from military contracts.

YARN

A continuous strand of textile fibers.

Jagger Brothers in Springvale, ME is one of the largest mills in this area. They make worsted spun yarns for knit and woven fabric manufacturing.

DYEING

Textile products can be dyed at various stages of the process.

Stock/Fiber Dyeing

Fibers are dyed after being cleaned and before being spun.

Yarn Dyeing

Yarn is dyed before being woven or knit into cloth.

Piece Dyeing

Fabric is dyed after being woven or knit

★ Today's mills are smaller than the textile mill giants we imagine from the region's past. Their smaller size provides for flexibility, faster domestic shipping times, and quality customer service which allows them to compete against foreign textile imports.

American Woolen in Stafford Springs, CT is working to rebuild America's wool supply chain by designing and producing woolen fabrics for the Made in America luxury movement.

★ There is a vast range in the scale of mills in New England. Some are very small and serve hand production. Others are large and employ hundreds of people in order to clean, spin, knit, or weave thousands of yards per day.

Leavers Lace in Rhode Island is the last lace mill in the United States.

Gowdey Reed in Central Falls, RI is the last handloom reed maker in the United States. A reed sits at the front of a loom and organizes the warp threads before they are woven into cloth.

FABRIC

Below are the three main methods of producing fabric.

Woven

Multiple yarns interlaced so that they cross over each other.

Knitted

A single continuous yarn is interlaced by looping into itself.

Non-Woven

Fibers are bonded together by chemical, mechanical, heat or solvents like felt

Infographic by Emma Werowinski, RISD Textiles BFA student, produced through a summer internship supervised by Jess Daniels

COMPLETED:

- Initiated our first Carbon Farm Fund in 2017 and raised \$24,000 for Carbon Farm Implementation in collaboration with end-users of Climate Beneficial Wool
- First round of capital was issued for the region's first mechanical weaving mill—Huston Textile Company; ('first' weaving mill to be built since the latter part of the 19th century). The mill utilizes cotton from certified organic fields and wool from climate benefiting farms and ranches. The mill is a critical value-addition link affecting over 1 million acres of working lands in our region.
- Region's first direct public offering funded wool mill—Mendocino Wool and Fiber, opened for business and is spinning yarn for regional farmers and ranchers in Northern California.
- Valley Oak Spinning Mill opened its doors in the autumn in Winters, California; supported by purchase order agreements generated by local rancher and knitting yarn producer, Mary Pettis Sarley (board member of Fibershed).
- Completed and disseminated deliverables for our Value Added Producer Grant issued through the USDA; including a deliverable focused on assessing the market for Climate Beneficial Wool—and its ability to cover the costs of regenerating soil carbon practices on working landscapes.
- Established the first Northern California Fibershed Agricultural Coop; a new producer led board has filed with the state of California to lead the region's first natural fiber & dye systems coop, that provides owner membership to farmers, ranchers, distributors, and processors.



Ecologically Focused & Place-Based Textile Economies

BY REBECCA BURGESS

FIBERSHED encourages textile culture creation that is tethered to human economic activity generated from within the natural boundaries of regional ecosystems, and includes managing those systems for regeneration. We view this level economic organizing as the ingredients for a truly civil, just, and ecologically reverent society. In contrast, the snapshot of our current economy is one saturated with investments in non-productive assets; spending on these assets is at an all time high, financial markets continue to trade over five trillion in currency daily, and the monetarily richest 20 Americans have more wealth than the monetarily poorest 50% of our nation's population. All the while extinction rates are surging at levels not seen in 65 million years, and a growing number of scientists are becoming vocal about 'abrupt climate change'—which has dire implications for human survival.

Our work at Fibershed and within our larger concerned stakeholder community is founded upon embracing and experiencing the sensations that derive from the alarming statistics, so that we can remain an effective and clear evaluator of 'solution-focused' discourse, as well as a creative contributor to it. Through clear evaluative-oriented discourse, combined with creative antidote-focused thinking, we seek to ensure our contribution to economic modeling of the 'solutions' is holistic, inclusive and scientifically accurate.

We make great efforts to ensure that our frameworks and resulting actions are working to create the future we intend them to.

Fibershed's ecologically focused textile economy projects generate from our soil-to-soil framework—a blueprint that tethers fiber and natural dye production to fundamental principles, including the rebalancing of the carbon cycle (de-carbonizing our atmosphere and re-carbonizing our soils), while providing the greatest possible number of opportunities for meaningful livelihoods. We empower farmers, ranchers, artisans, family owned manufacturers, students, general public 'wearing' and ecologists to collaborate as members of one integrated Fibershed community.

To re-carbonize our soils through the work of our grassroots agricultural community, Fibershed's Carbon Farm Fund was developed in 2017 as a structure to deploy funds for the renewal of carbon stocks on working lands via practices that include, but are not limited to: tree plantings, pollinator corridors, dye plant hedgerows, compost applications, support for prescriptive grazing, fresh water creek restoration, cover cropping and silvopasture development (returning trees to pasture). The fund garners support from direct public donations—a 60 cent per pound premium on wool sales from commercial flocks living on managed landscapes that are implementing soil carbon sequestering practices, and also from a point-of-sale percentage on all goods sold from artisan projects that utilize fiber and natural dyes from soil carbon sequestering farming and ranching operations. The fund garnered \$24,000 dollars in its first nine months, and will be distributing all of those funds within our region in 2018. Beginning in early 2017 we focused on the design and planning, as well as securing matching grants, to implement the fund's first major project—a 4-mile tree planting layered with an understory of natural dye and pollinator species, all of which will be planted in the spring of 2018.

Manufacturing in the Fibershed

MILLING AND FIBER processing is a critical function of a healthy fiber and natural dye system. The value-chain processors are a key economic—and often a key cultural—link between hundreds of independently owned and operated farms and ranches and the wearing public. Fibershed has come to understand that milling systems are public infrastructure, and critical to any region's food and fiber sovereignty. Due to the low margins within the fiber and textile system as a whole, and the non-patentable technologies that mills rely upon, these businesses require highly innovative community engagement and non-conventional funding to be built and operated. In 2017, Fibershed laid the foundation for the first successful public related investment (PRI) and Royalty Investment within in our regional textile manufacturing system. To help secure this first round of investment, Huston Textile Company was provided business planning and development services via support provided by Fibershed's economic development program. The mill is the first commercial scale mechanical weaving facility to exist on our soils since the late 19th century. The community shared in the celebration of the mill's opening in May of 2017. The celebration was wonderful, and yet, Huston Textile Company will need to raise significant capital in 2018 to build out the full scope of necessary infrastructure. The mill relies on



a regional material base of fiber—including organic cotton and Climate Beneficial wool—and the facility is prepared for flax (linen), hemp, nettle and other natural fibers that can be grown in our region. The weaving mill currently affects over one million acres of range and arable land within California.

Preparing natural fiber yarns for the new weaving facility is a critical additional piece of the value-chain and with the opening of Mendocino Wool & Fiber mill (owned by Matt and Sarah Gilbert, a Mendocino-based family), a certain quantity of what we call 'weft threads' within a woven textile will be milled regionally from material that is grown or produced from the



Top, Huston Textile opens its doors at a public celebration—the mill is weaving California raised Climate Beneficial wool and organic cotton (Photos by Paige Green). Above, Marcail McWilliams stands in front of the spinning equipment at her newly opened Valley Oak Wool & Fiber Mill in Winters, California; left, Matt Gilbert tests the strength of roving at his newly opened mill, Mendocino Wool and Fiber in Ukiah.

soils of our local farms and ranches. The soil-to-soil framework now has two critical components of the value-chain in place. There remains a need for enhanced fine gauge protein yarn milling and fiber washing within our region, as well as short staple spinning. These are manufacturing advancements we will continue to move forward through building our network of talent, supporting that talent with feasibility studies, business planning assistance, and connections to conscious forms of capital.

USDA Value-Added Producer Grant

WE COMPLETED our first USDA-funded project this year through the Value-Added Producer Grant Program. Two documents were produced through this planning grant: a public facing feasibility study for Climate Beneficial wool production and supply chains, and a business plan for a diversified value-added, producer-run business based on production, processing and marketing of Climate Beneficial wool products. Building on the foundation of the planning grant's work, one of our producer members is now preparing an application for a Working Capital grant to expand and strengthen her value-added business in the 2018 round of USDA's Value-Added Producer Grants. With the resources provided by the planning grant, we were also able to support the legal and organizational work that resulted in a core group of Fibershed producers establishing the Northern California Fibershed Cooperative. This newly-formed agricultural cooperative has a stated mission "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 cooperative marketing, value added production and education." The Cooperative received initial financing from the Force for Good



Fund, and will commence development of a robust website for online marketing and sales in 2018. Legal and organizational documents used to found this new cooperative marketing business will be available in an open-source format to support future cooperative businesses for marketing and processing of regenerative, regionally-based fiber products.

Analysis of Financial Literacy

TO UNDERSTAND the business education needs and goals of the Fibershed Producer community, we completed a two-part survey and analysis. We collaborated with Jenn Shepard, a Master's Degree student at the University of Minnesota, whose work focuses on the human dimensions of natural resources and recreation management. The project scope yielded a two-pronged approach that included both a quantitative survey distributed digitally through SurveyMonkey, and a qualitative interview series held via phone.

Twenty-two total survey respondents provided information across the realms of enterprise revenue, financial skills and understanding, marketing and sales channels, past experiences with continuing education or technical specialists, and more. A semi-structured interview guide was designed to complement the survey questions, and dig deeper into Producer community perceptions, preferences, and barriers.

In late 2017, we analyzed and coded interview transcripts for themes and distilled the data into a summary document that provides a snapshot of past experiences with sales channels, learning opportunities, business management, and community involvement. In conjunction with the survey data, we now have a data-rich foundation to guide the creation of a business curriculum that best targets and goals, gaps, and desires that our Producer community holds for resilient and efficient business management.

COMPLETED:

- Micro-grant seed funding awarded to 4 projects in distinct geographies, supporting 10 site visits, 2 producer workshops, 1 community roundtable, 1 mini documentary and 1 fiber systems map
- External grant applications supported for 2 Affiliates, to Patagonia's Environmental Grants & Funding (successful) and the Victorian Climate Change Innovation Grants (pending)
- Membership welcomed 5 new Fibershed Affiliates with orientation conversations and addition to the Affiliate Directory, convened for a Digital Gathering in the Spring, and was supported through 4 speaking engagements to over 250 community members total.

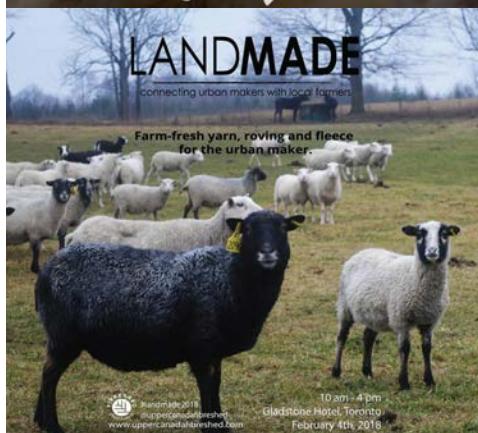


Affiliate Program

BY JESS DANIELS

Membership Updates

THE Fibershed Affiliate community continues to inspire and energize pathways to resilient regional fiber systems. We welcomed five new members and supported several regions in leadership transition conversations. Specific geographic and economic features inform each fibershed community, yet many face parallel or comparable challenges and questions, and the Affiliate Network serves as a way to exchange strategies and connect around tools, crops and supply chains. The Fibershed Affiliate Network is a vibrant, dedicated community exploring restoring regional textile culture.



Social media posts from Affiliate groups, including (clockwise from upper right): Fibreshed Melbourne, Rust Belt Fibershed, Adirondack Fibershed, Upper Canada Fibreshed, Pembina Fibreshed, Upper Canada Fibreshed and Mountains & Plains Fibershed.



Micro-Grant Seed Funding

THIS YEAR we focused on sharing resources and pathways to strengthen the Fibershed Affiliate organizing efforts taking place around the world. Our inaugural call for micro-grant seed funding proposals received twelve inspiring submissions, representing diverse geographies and shared project goals of cultivating a deeper understanding of regional fiber system needs and assets.

In August we awarded 4 micro-grants:

FIBRESHED MELBOURNE

(VICTORIA, AUSTRALIA)

\$2,482 for the Australian Fibreshed Knowledge Base proposal, “to build relationships, enable story telling and collect data on current and potential capabilities across the farming, processing, dyeing and retail sectors.” This seed funding supported site visits to remote areas of the Fibreshed Melbourne strategic geography, photography to document Producers and Processors, and a data-sharing partnership with the Council for Textiles and Fashion.



PACIFIC NORTHWEST FIBERSHED

(OREGON, USA)

\$2,040 for the Pacific Northwest Regenerative Fiber Systems Map, “to begin our community outreach and needs assessments through online story telling (video and photography), written materials, and a booth at the Oregon Flock and Fiber Festival.”

THREE RIVERS FIBERSHED

(MINNESOTA, USA)

\$1,842 for the Three Rivers Fibershed Local Fiber Producer Outreach Project,

“to host and moderate two in-person local producer workshops... paired with one-on-one farm visits by our Producer Outreach Coordinator, who will, using a basic SWOT analysis for each producer’s fiber operations, assist producers in identifying internal and external successes and challenges of their individual operation.”

MOUNTAINS & PLAINS FIBERSHED

(COLORADO, USA)

\$775 for From Soil to Cloth: A Community Roundtable of our Fibershed’s Assets and Objectives, a free event “to foster understanding of our local fibershed, its resources and potential.”

Monthly check-ins from micro-grant award winners have provided inspiration, project updates, and opportunities for guidance and feedback.

Fibreshed Melbourne completed five site visits in Canberra, including a mini mill, two alpaca farms, one permaculture sheep farm, and one natural dye researcher, and has issued blog posts about three visits. Co-organizer Nicki Colls noted that “The trip was really beneficial for us in terms of future planning” and included a strategic visit to the Australian Food Sovereignty Alliance Convergence, where the Fibreshed Melbourne members “tested our the idea of adding value to the food farms via use of their animal fibre.”



Top: The Adirondack Fibershed hosted an “alfresco” natural dye class to explore botanical color on a regional farm with local guest teacher Tammy White of Wing & A Prayer Farm (Image via @adirondackfibershed Instagram). Above: The Pacific Northwest Fibershed, with seed funding through the micro-grant program, participated in the Oregon Flock and Fiber Festival where they “had countless inspiring conversations with fiber producers on how to best support their work.” (Image via @pnw_fibershed Instagram)

Pacific Northwest Fibershed organizer Shannon Welsh notes that “PNW Fibershed was awarded an affiliate micro-grant, which has supported our work and allowed us to cultivate a partnership with Ecotrust, an organization that works to advance social equity, economic opportunity and environmental well-being. We began by tabling at the Oregon Flock and Fiber Festival, an agricultural fair that brings together farmers, processors and consumers each fall. We had countless conversations where we asked folks: ‘How can we cultivate a stronger regional fiber economy? What’s already working? What’s not?’ We plan to continue these conversations with our community and are working together to create an open source map of our regional fiber system which will allow us to not only identify resources and connect stakeholders, but also identify the gaps in our current system. This grant also supported us in producing a video that highlights the similarities between the food and fiber systems, how they work together within a regenerative agriculture system, while also exploring what makes the fiber industry unique and how to best support it. We are very thankful for the support from Fibershed, and look forward to sharing the video and map with the community in the near future!”

The Three Rivers Fibershed held a sold-out producer workshop for sixteen producers in Minnesota and Wisconsin to “focus on our Fibershed’s collective resources, strengths and challenges, marketing, branding, product presentation, telling the story of your farm and its fiber, and connecting with consumers and appropriate markets for optimal financial value.” Co-organizer Lydia Strand has since completed five one-on-one site visits and is aggregating data from the Strengths, Weaknesses, Opportunities and Threats (SWOT) analysis. In late January, the group will hold its second workshop “to move past the grazing basics most producers are familiar with and begin to introduce more specifics around Carbon Farming and what strategies and implementation for Climate Beneficial Wool look like.”

Mountains & Plains Fibershed has lined up speakers for their February 2018 event, Growing Good Fabric, including Colorado State University Fort Collins soil scientist Matt Wallenstein, sustainable farmer Katie Miller of Heritage Belle Farms, and natural dye expert Donna Brown. Co-organizer Anne-Marie Chmielewski notes in her micro-grant check-in that “we identified our biggest challenge to be in marketing and increasing interest in local wool. To address this, we have done a fair amount of networking at local events. Just recently Mad Agriculture, a local organization focused on increasing awareness of the importance of carbon farming, starting holding monthly Carbon Farming sessions at a local grange. These have been fantastic networking opportunities for us. The founder and director of MadAg will attend our conference and help spread the word.”

In early 2018 the micro-grant cohort will complete their funded projects and share their outcomes and experiences with the Fibershed Affiliate Network in two Digital Gatherings this Spring. These webinars will allow for cross-pollination of the findings and resources generated through the micro-grant projects, which touch on themes and challenges that have been echoed by many Affiliates, such as marketing local wool, sharing carbon farming strategies with local producers, sharing fiber production and processing data with stakeholders, and mapping and communicating resources within one’s strategic natural fiber resource base.

The micro-grant process and connectivity has also sparked exciting developments for future projects: in November, Fibreshed Melbourne submitted a Climate Beneficial Textiles project proposal to the Victorian Climate Change Innovation Grants with guidance, a letter of support and seed-funding commitment provided by Fibershed.

The seed funding process, from proposal review through project guidance, has been illuminating and inspiring. We

look forward to continuing to work with, learn from and support the rich community of organizers and producers, educators and artists, who are revitalizing regional fiber systems, starting at home.



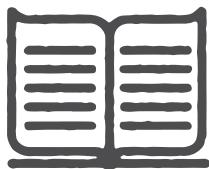
*Sarah Pottle and Jessalyn Boeke, textile artists and co-founders of the Rust Belt Fibershed, based in Cleveland, Ohio
(Image via @driftlabco Instagram)*

“Rust Belt Fibershed provides the platform to shift the conversation toward understanding that taking care of the environment is less of a political thing and more of an “everyone lives here” sort of thing. Through sharing stories of the work that show the beauty and heritage of our community, we hope to foster unlikely partnerships between those who may speak different political languages but still value each others’ talents as well as our shared natural resources. We see these stories as an important part of improving our communities, environment and local economy.”

— JESSALYN BOEKE, RUST BELT FIBERSHED CO-ORGANIZER

COMPLETED:

- Original educational content campaign to promote Climate Beneficial Fashion, including over 150 social media posts, 3 blog posts interviewing 10 designers, and 4 video segments
- 5-minute educational video on Climate Beneficial Wool, launched with 3 short clips and a full feature
- 25 major press features, including Grist 50 “The Fixers” innovators list, Yes! Magazine, Mercola.com, and Fast Company
- 27 original content newsletters featuring community and non-profit efforts
- 8 weekly social media posts across channels, including original infographics, noteworthy articles, producer blog posts, events and educational opportunities



Social Media & Digital Communications

BY JESS DANIELS

FIBERSHED COMMUNICATIONS serve to inspire and inform our community, to deepen public awareness and understanding of all aspects of fiber systems from soil to soil. With a local emphasis and global impact, we engage over 35,000 total followers with original content and high quality articles nearly every day of the week. Our website acts as our visually engaging and resource-rich digital home base, and welcomed 560% year-over-year growth in visitor traffic for a total of 87,000 sessions.

fibershed_
2017 best nine on Instagram #2017bestnine

32,313 Likes to 85 posts in 2017
fibershed_ Thank you for your likes!

“Each newsletter — spotlighting a new initiative or highlighting a new member — is like a mini course in sustainable fiber farming. I’m grateful for the sharing of knowledge every time.”

— KATRINA RODABAUGH
AUTHOR & ARTIST

At a time when ‘clickbait’ media overruns the social sharing stream, the Fibershed voice remains steady and resounding—at the intersection of climate, community development, fiber arts and the restoration of working lands. We worked this year to create longer, interconnected arcs that narrated the launch of reports on textile recipes, biosphere-based pigment and portraits of the producers and landscapes that clothe us. In advance of September’s Climate Beneficial Fashion Gala, we wove the story of Climate Beneficial Fashion through over one hundred and fifty social media posts, three in-depth blog posts that interviewed ten fashion designers, and four video segments.

Fibershed utilizes social media hashtags as tools to invite participation, build layers of meaning, and find commonality across geographies: there are now over 4,765 images on Instagram in the catalogue of #fibershed, ranging from explorations of regional fiber farms to experiments in mending and ‘aha’ moments in understanding carbon farming.

In coordination with the Climate Beneficial Fashion Gala, Fibershed collaborated with filmmaker Brenda Manookin to synthesize a 5-minute video that captures and details the potential for Climate Beneficial Wool to restore our carbon balance, right livelihoods and material culture. Across all channels, the video has been viewed over 22,000 times and continues to serve as an educational tool and introduction for audiences in person and virtually. Brenda also filmed the Fashion Gala to capture the connectivity between

community, food and fiber systems. Growing the body of Fibershed footage also allows us to broaden the reach of our mission by sharing clips with media outlets and documentary projects.

Fibershed continues to serve as a beacon of hope as the environmental toll of the fashion industry garners greater media and public attention: in 2017, Rebecca was honored as one of the Grist 50 “innovators with fresh, forward-thinking solutions to some of humanity’s biggest challenges,” noting that Fibershed is “stitching together a local clothing movement.” Throughout the year, Fibershed was featured in press outlets ranging from *Yes! Magazine*, to *Craftsmanship Quarterly*, to *Fast Company*, and more.

Fibershed content and communications hold space and support for the voices of people in Affiliate and rural communities, whether through our Producer Program blog entries that offer a virtual visit to nearby pastures, or cross-posting podcasts and interviews that offer the perspectives of textile economies in distant geographies.

Bi-monthly digital newsletters, introduced in 2016, have become a hallmark and centering point for sharing our work: we created and shared twenty seven original emails this year, grew our email list by 11.3%, and held steady at a roughly 40% open rate (nearly twice the industry average). The first newsletter of the month rounds up community events and actionable items,

such as natural dye classes offered by Fibershed Producers, rotational grazing workshops taught by visiting ranchers, documentary screenings that illuminate the true cost of textiles, and more.

At the end of the month we feature on-the-ground updates including recaps of Fibershed presentations, peer-reviewed scientific articles on carbon farming, blog entry and press highlights, and our Notes from the Field column offering topical updates on our projects and programs. With 13.3% of readers ‘clicking through’ to learn more about the featured events and updates (nearly 5 times the industry average), we know that these bulletins are a practical and powerful way to distribute the work of the Fibershed community.



thefareground • Follow

thefareground Fareground Dinner 004 // Sarah Keiser of @wildoakwillow imparting her knowledge of carbon farming and the power of rotational grazing. The night was full of wisdom, delicious food, connection, and laughter. A night to remember!

#farmtotable #farmtofork #dinner #organic #farmfresh #carbonfarming #fibershed #local #womensupportingwomen

56 likes

DECEMBER 13, 2017

Add a comment...



waywardrootsco • Follow

waywardrootsco For decades, American sheep farmers have been consistently declining due to a depressed wool industry, a direct result of increased use of nylon, polyester and acrylic in clothing and soft goods.

Did you know more often than not you can still buy items such as yarn, roving, pets, and select meat cuts directly from the sheep farms? Though you may not always see them at markets or stores, try looking up farms near you, make a visit to them, and bets are they would be happy to sell you some of their premium goods.

Every time someone chooses to support a farmer and the products they produce, it has the ability to influence the utilization of wool and other natural fibers within textiles. Not only that, but we are helping to keep these farmers on their land and encouraging

62 likes

OCTOBER 15, 2017

Add a comment...



mastodonvalleyfarm • Follow

mastodonvalleyfarm So happy to get our first batch of #ramboullett yarn back from @wettoplarny! Soon we'll all have sweaters to match our sheep! 🐑 #driftless #fibershed #wayyourecosystem

girlsmams This is so cool! Congrats!

pranamaker Love it! Have you read the kids book Charlie Needs a Coat? And How Batiste Made Bread? Classics and relatable to your lifestyle!

courtneyjoy_floral Amazing! purrrty

146 likes

SEPTEMBER 28, 2017

Add a comment...

A rich tapestry forms through social media connectivity, as community members near and far share their explorations and understandings of regional fiber systems, using #fibershed to contribute to the pool of imagery and peer-to-peer, place-based textile culture. (Images shared on Instagram).



niona_ki • Follow

BUT, there are solutions!! There were also many speakers sharing information about what WE can do. We have enough wool being produced in California to keep it local. We can (and are) implementing climate beneficial farming practices to put the carbon back in the earth, back into our soil, resulting in climate beneficial yarn and fabric. We can bring the processes that cloth us back home, to our back yards and local economies. We can illuminate each step of the process, from the farm to the clothing rack.

In short, the fibershed community is re-writing the very foundation that supports our fashion industry through research, education, collaboration and leading through action—for the sake of the health of our planet. 🌎

I was SO inspired to sit in a room full of

32 likes

DECEMBER 11, 2017



waywardrootsco • Following

waywardrootsco There is an unspoken bond to its source, one that has cultivated a mutual relationship of support and loyalty. And that right there is an integral key in propelling the livelihood of these smaller establishments, the ones that remind us our responsibility to those within our communities is pivotal to sustaining and upholding each of its individuals. To grow and evolve, to fail and rise together.

Excerpt from the latest over on the Wayward Roots site with Wolf Ridge Icelandic. Head over to the link in our bio to find more on this story. This experience was near and dear to us as it was a step that ignited an entirely new venture of exploring the sheep farming industry (see [#behindthewool](#)) a series the will slowly emerge in this space.

#waywardroots

waywardrootsco #wool #astonytotell #artfulsheep #bedeckivrooted #fibershed

44 likes

SEPTEMBER 17, 2017

Highlighted Press

Yes! Magazine: The 150-Mile Wardrobe: A Solution for One of the World's Most Polluting Industries – Winter 2018 issue

Craftsmanship Quarterly: The Hidden Powers of a Sheep – December 2017

EcoTrust: Exploring New Connections in Our Fibershed – November 2017

Fast Company: This Hat Comes from “Climate Beneficial” Carbon-Positive Sheep – November 2017

Ethical Style Journal: The Return of Hemp and Ongoing Research – Fall/Winter 2017 Issue

Fringe Association: Slow Fashion Citizen: Rebecca Burgess & Fibershed – October 2017

Permaculture Magazine North America: Growing Community by Growing Clothes: How to Start a Fibershed – Issue 06

Mercola: How Natural Textile Dyes May Protect Health and Promote Environmental Sustainability – October 2017

Craftsmanship Quarterly: Eco-Fashion’s Animal Rights Delusion – October 2017

Coyuchi: Andrea Plell of Ecologique Fashion (recap of Climate Beneficial Fashion Gala) – September 2017

SF Chronicle: September’s Coolest Collabs and Events – Fibershed’s Climate Beneficial Gala – September 2017

For a Better World: The Regeneration Issue: A Soil-to-Soil Vision for the Fashion Revolution – September 2017

Ecocult: 4 Surprising Reasons Why Environmentalists Should Wear Wool – September 2017

Woolful Podcast: Rebecca Burgess – Natural dyeing, Regional fiber systems, Conscious Consuming, and Fibershed – August 2017

*Design*Sponge:* 5 Tips for Sourcing Ethical Textiles with Mira Blackman – July 2017

Bioneers: Carbon, Climate, Food, and Fiber (podcast) – July 2017

Amirisu Magazine: Sourcing Our Fashion from Our Bio-Region – Summer 2017

New York Times: To Fight Climate Change, Heal the Ground (features Fibershed members Skylark Ranch) – May 2017

Minnesota Knitters’ Guild: An Interview with the Three Rivers Fibershed (Fibershed Affiliate article) – April 2017

Fiber Art Now: The State of Fiber Art Now – Winter 2016/2017 Issue

Grist 50: Meet the Fixers: Rebecca Burgess is Stitching Together a Local Clothing Movement – March 2017

CSU Chico: Regenerative Agriculture Initiative Seminar with Rebecca Burgess, Founder of Fibershed – February 2017

Interweave magazine: The Continuous Thread – Winter 2017

Rodale’s Organic Life Magazine: 100 Amazing Ideas, the Innovation Issue – January 2017

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

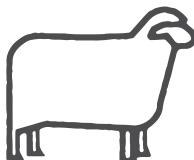
The image shows two magazine covers side-by-side. On the left is a thumbnail of a magazine cover for 'YES! magazine' featuring a woman holding a plant. The main cover for 'FAST COMPANY' features a dark grey beanie with a small brown leather patch that says 'THE NORTH FACE'. The background of the main cover shows a field of sheep grazing under a clear sky. The title 'This "Climate Beneficial" Wool Hat Comes From Carbon-Positive Sheep' is written above the image.

This graphic is a vertical illustration. At the top, there's a small brown box labeled 'FEATURE'. Below it is a stylized drawing of a cotton plant with bolls. The main title 'A SOIL-TO-SOIL VISION FOR THE FASHION REVOLUTION' is written in large, green, hand-drawn-style letters. A short paragraph at the bottom discusses the shift away from conventional cotton production towards more sustainable, regenerative fiber systems.

The image shows a double-page spread from 'YES! magazine'. The left page features a large photo of three people standing in front of a greenhouse: a woman holding a bundle of dried plants, a man with a beard, and another man holding a clipboard. The right page has a large headline 'The 150-Mile Wardrobe: A Solution for One of the World's Most Polluting Industries'. Below the headline is a smaller text block and a photo of the same three people in the greenhouse. The 'YES!' logo is at the top left, and the word 'magazine' is at the bottom left.

COMPLETED:

- Data updates and verification of all Producer Program data to complete profiles of Producer membership; utilized this data to calculate carbon drawdown projections and impacts of Producer Program & Climate Beneficial Wool pipeline goals
- Created custom scaffold for tracking and inputting Climate Beneficial Pipeline and Soil Science data to organize producer participation
- Reframed and revised “general membership” into supporter levels with new, dye plant-inspired monikers
- Contracted with a Salesforce consultant to shift to a dedicated donation platform with added features such as program-specific fundraising; linked this new system to Salesforce database and will complete the transition in early 2018



Database Development

BY JESS DANIELS

AS THE FIBERSHED community grows, so does the quantity and complexity of information that is shared, requested, and used to provide services and programs. This year we overhauled our Producer Program database, housed in a customized version of the Salesforce Nonprofit Success Pack, the industry standard data architecture. Producer Program Coordinator Marie Hoff updated and verified information from each member to ensure that our database accurately represents the land base, breed diversity and program engagement of the Producer community.

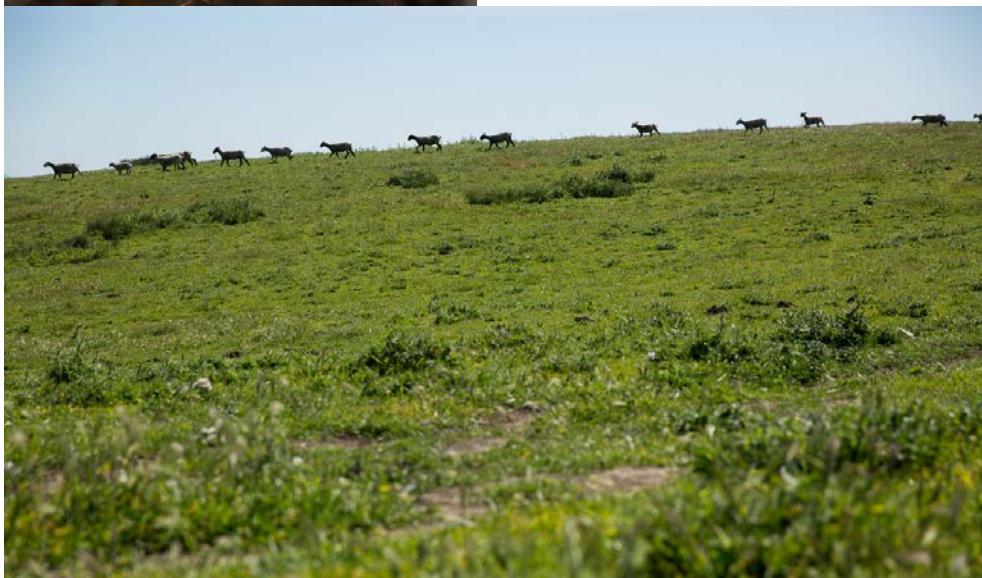
Building off our robust baseline of Producer data, we have created a scaffold for tracking and entering data from the Climate Beneficial Pipeline program, such as checking off steps completed by the Producer, noting which Carbon Farming Practices will be engaged, and storing soil analysis information from the Gaudin Lab. Storing this information alongside each

Producer member data profile allows us to organize a great depth of detail while also holding an “at a glance” view of the program, with the ability to generate custom reports to illuminate cross-sections of our community data.

In 2017 we turned our eye for data organization to the ‘general membership’ donation and engagement process, and worked to build a more efficient, flexible and easily understandable system. Incorporating feedback from our community of Producers and longtime contributors, we revised the ‘general membership’ levels into supporter levels named after the plant sources of pigment in our landscape, and built a system that offers automated acknowledgment messages, recurring (i.e. monthly) donation options, and more.

To make donations and support more efficient, we connected with RedPath Consulting Group, a Minnesota-based company that specializes in Salesforce customization for nonprofits. Our consultant listened to our current workflow and goals, and provided several options for donation processing and management scenarios. We selected a pathway that allows for a clear and easy experience for supporters as they make a contribution through our website, while offering a streamlined data collection and reporting process for our staff. Our updated system essentially removes the need for Fibershed staff to be the ‘go between’ in receiving and recording a donation, and this automation means a more timely and effortless process for supporters to stay involved.

Our updated system is in the final round of verification and once the transition is complete, slated for early 2018, we will have significantly more flexibility to create specific fundraising campaigns. This means we can offer the opportunity for community members to support projects or work that resonates with them, to give at a monthly or one-time contribution of any amount, and our fundraising efforts can integrate seamlessly into our communications across email and social channels.



COMPLETED:

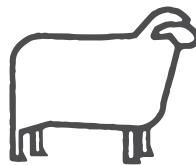
- Landscape assessment of four grazing schools (<http://www.fibershed.com/wp-content/uploads/2018/01/shepherding-school-report-Sept-2017-compressed.pdf>)

- Public webinar on research outcomes (<https://goo.gl/5Z7K3L>)

- Graziers training program research and discovery surveys developed and disseminated for industry and prospective student stakeholders within the western United States:

Industry Intake Survey
(<https://goo.gl/ijeNXT>)

Prospective Student Questionnaire
(<https://goo.gl/Pd8uAt>)



Grazing School of the West

BY BRITTANY COLE BUSH

BASED UPON a collaboration with European graziers, educators and authors Michel Meuret and Fred Provenza—two young American Livestock Managers, Brittany Cole Bush and Guido Frosini began a research focused trip to better understand and analyze the training required to develop professional graziers, who are both able to move animals through a set of seasonal pastures, based on their reproductive cycles, to fixed locations (known as transhumance), as well as manage and or contribute significantly to cooperatively designed value-added businesses focused on dairy and cheese production, and wool, lamb and goat meat. To better understand how European grazing schools are successfully developing trained, ecologically thoughtful graziers, the team traveled to the Basque region of France and Spain within the Pyrenees and Alps, traversing through Provence and onward to Catalonia. The team drove and camped with the help of



an old VW van, visiting and studying four grazing schools along the way and conducting extensive interviews of the school's administrators, students and staff—as well as documenting course curricula and shadowing of grazier students in action.

Since the completion of the European research trip, Brittany Cole Bush has initiated a two-prong approach to building grass roots and policy support for the advent of an American shepherding school; the following presentations and trainings were conducted in 2017:

PRESENTATION: “Prescribed Herbivory for Vegetation Management Projects: Opportunities in Land Management, Public Safety, Job Creation and Eco-System Services” to the San Diego Fire Council, hosted by the San Diego Resource Conservation District at San Diego Gas and Electric HQ; 60 Attendees

PRESENTATION: “Prescribed Herbivory for Vegetation Management Projects: Alternatives to Chemical and Mechanical Fossil Fuel Treatments” at the National Forest Service, Plumas County; 12 attendees

TRAINING: “Innovative Entrepreneurship & New Pastoralism” at Sterling College’s School of the New American Farmstead; 22 students

TRAINING/PRESENTATION/PANEL: “Prescribed Herbivory for Vegetation Management Projects: Opportunities in Land Management, Public Safety, Job Creation and Eco-System Services” at the Society for Range Management Annual Conference; 80 attendees

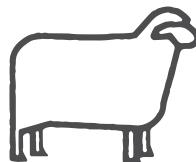
Research included shadowing shepherds such as Andreis Genevieve (top left)—a salaried shepherd in the French Alps for 40 years—in their daily activities: tending to their flocks, daily milking, herding with dogs on grazing circuits, building electric fences and barn feeding lambs. Left, Laxta sheep of the Basque region. Laxta dairy produces culturally significant traditional cheese (Photo courtesy of HAZI).

Producer Program

- 16 professionally photographed stories on farmers and artisans
- 4 stories on regional textile projects
- 17 new farms and 18 new artisan members added
- Refined website formatting & maintenance featuring visual biographies of producers
- Data input & aggregation of info relating to our regional fibershed system
- May 2017 Producer Meet-Up brought together Fibershed farmers and artisans in a face-to-face gathering
- Fire assistance & recovery to farm and ranch producers during and after the 2017 fire season

Climate Beneficial Wool

- 24,380 pounds of wool sheared straight from the sheep has been verified as part of Fibershed's regional Climate Beneficial verification program
- 102 sewers, designers and small brands took part in the first successful cloth kickstarter made of 100% Climate Beneficial Wool
- Three brands developed direct ties with Climate Beneficial ranchers from Fibershed's producer program, and have contributed to Carbon Farm Implementation on these working lands



Metrics



Wool Book

- 21 *Wool Book* loans to apparel companies, artisans, designers, affiliates and design schools
- 16 presentations by Fibershed staff featuring the *Wool Book* as a resource for understanding and sourcing regional fiber products.
- 5 design schools utilizing the *Wool Book* in their courses

Carbon Cycle & Carbon Farm Education & Research

- Four Fibershed Producer member grant awards were made through the state's first Healthy Soils Program
- Initiated first peer-to-peer Carbon Farm Cohort focused on Carbon Farm planning and implementation
- Provided in-person education to 7,093 members of the general public, and reached 34,294 individuals through our online education and media
- Completed a literature review on the carbon sequestration potential of integrated crop-livestock (ICL) systems in semi-arid regions



Fiber & Design School Collaborations

- 4 design and textile schools engaged and supported by Fibershed staff
- 10 presentations/guest lectures by Fibershed staff and 3 site visits to Fibershed Producer landscapes
- 80 pounds of Climate Beneficial Wool utilized in student design incubator

Events

- Publicly launched the first line of Climate Beneficial Wool garments with our region's first 100% regionally grown wool cloth
- Hosted over 300 members of the general public at a sold out farm-to-fork and soil-to-skin event
- Held our 6th Annual Wool Symposium for a sold out audience of over 150
- Hosted the general public for twelve free fiber & dye demonstrations and a free marketplace held by 29 of our region's farmers and artisans



Citizen Science

- 33 farms and ranches sampled their soils for organic carbon using the Citizen Science Protocol
- Eight Producers have completed consultation with the Gaudin Lab and Fibershed staff, and have committed to recalibrating on practices that focus on 'carbon as an organizing principle'

(Photos by Paige Green)



Ecologically Focused & Place-Based Textile Economies

- Initiated our first Carbon Farm Fund in 2017 and raised \$24,000 for Carbon Farm Implementation in collaboration with end-users of Climate Beneficial Wool
- First round of capital was issued for the region's first mechanical weaving mill
- Region's first direct public offering funded wool mill—Mendocino Wool and Fiber, opened for business
- Valley Oak spinning mill opened its doors in the autumn of 2017 in Winters, California
- Established the first Northern California Fibershed Agricultural Coop; a new producer led board has filed with the state of California to lead the region's first natural fiber and dye systems coop.

True Blue

- Completed three public facing documents that overview context, processing and economics of plant-based agriculture to produce blue pigment with *Persicaria tinctoria* (Japanese indigo)

Hemp Research

- North Carolina hemp field trials were completed for the first time in 80 years
- First open source blueprints for farm scale hemp processing completed and issued publicly
- First hemp-to-cloth hands-on training held in Kentucky since the legalization of the crop
- Three new wool mills have successfully blended their first wool and hemp blends, including Mora Mill in New Mexico, Rach-al-paca in Minnesota, and Mystic Pines in Arizona

National Mill Inventory

- 1,023 site visitors educated about the state of textile milling in the US
- 4 textile milling and mapping projects supported through consultation and open-source sharing of data and research framework
- 1 summer internship supported to bring milling back into textile design studies

(Photos by Paige Green)

Communications

- Email newsletters: 27 bi-monthly and specialty newsletters created and shared; subscriber list grew 11.3% to 5843 people; An average of 39.3% of newsletter subscribers opened each message, nearly double the industry standard rate, and 13.3% of readers clicked on a link to learn more (nearly 5 times the industry average)
- Instagram: Grew followers from 10.2K to 16.4K; 85 posts received a total of 32,313 "likes"; over 4,765 posts have been shared using #fibershed
- Facebook: Increased from 9,672 to 11,170 followers; With an average of 5 posts per week, we engaged an average of 832 people per week and reached a total of 10,035 people weekly
- Website: a total of 87k sessions represents a 560% increase in traffic over 2016; 57,306 users (visitors) and 226,164 pageviews



Affiliate Program

- 5 new Affiliate groups
- 4 Micro-grants awarded from a pool of 12 proposals submitted
- 2 External grant applications supported, 1 confirmed successful
- 1 Digital Gathering held



Database

- 133 Producer Membership profiles updated with data spanning from goods and services offered, program interests and participation, micron count and land acreage
- 5-part custom data scaffold created to track Climate Beneficial Pipeline participation, notes, Carbon Farming activities and soil data from Producers
- 95% completion of donation processing platform overhaul to a streamlined and flexible workflow that reduces admin and increases supporter engagement

Financial Statement

January 1 - December 31, 2017

REVENUE & EXPENSES

Revenue

Grants	571,567
Earned Revenue	70,214
Contributions	25,135
Total Revenue	\$666,916

Expenses

Programs	501,384
Admin/General Operations	91,705
Fundraising/Development	20,871
Total Expenses	\$613,960

LIABILITIES & EQUITY

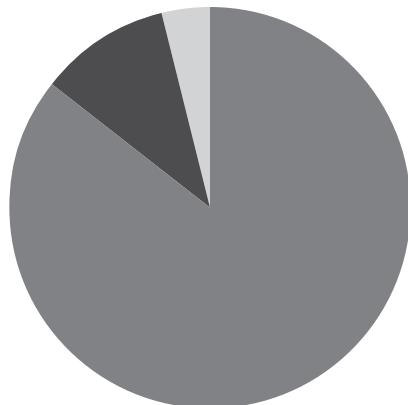
Current Assets

Unrestricted Assets	311,376
Restricted Assets	30,000
Total Assets	\$341,376

Total Liabilities

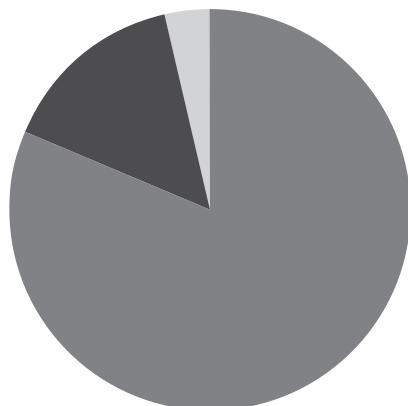
Total Liabilities	9,954
Equity	331,422
Total Liabilities & Equity	\$341,376

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



REVENUE

- 85.7% Grants
- 10.5% Earned Revenue
- 3.8% Contributions



EXPENSES

- 81.7% Programs
- 14.9% Admin/General Operations
- 3.4% Fundraising/Development

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

Anonymous
Blackie Foundation
Clif Bar Family Foundation
Community Foundation of Jackson Hole
Wiancko Family Donor Advised Fund
Dillon Family Foundation
Dr. Bronners Family Foundation
Jena & Michael King Foundation
Leaves of Grass Fund
Lydia B. Stokes Foundation
New Priorities Foundation
Patagonia Environmental Grants Program
Regenerative Agriculture Foundation

Individual Donors

Liebe Patterson
Christine M. Scott

Producer Members

2NFrom
Ace 'N The Hole Ranch
Alpaca Shire
Ama Wertz
Barbara Macdonald
Big Barn Farm
Black Rock Ranch
Blaer Knits
Bo-Rage Yarns
Bodega Pastures
California Cloth Foundry
Carol Lee Shanks
Chico Flax Project
Crockett Handspun
Downhome Handspun Fibers
Ewe & Me 2 Ranch
Fiber Confections
Fleece To Garment
Foggy Bottoms Boys
Free Hand Farm
Full Bloom Flower Farm
Full Circle Wool
GDS Cloth Goods
Heartfelt Fiber Farm
Hilary Designs
Kassenhoff Growers
Kirabo Pastures
Macedo's Mini Acre
Madge + Me
Madrone Coast Farm
Marin Sewing Lab
Menagerie Hill Ranch
Mendocino Wool & Fiber
Meridian Farm
Meridian Jacobs
Michala Jeberg
Myrrhia Fine Knitwear
Ohm Gnomes
Pacific Knitting Retreats
Paleotechnics
Quantum Culture
Red Creek Farm
Red Twig Farm
Rockstar Alpacas
Sheep To Shop
Sheepie Dreams
Shepherd's Dream
Sincere Sheep
Skylark Ranch
Spinning In The Wind
Starbuck Station Wools
Stonehenge Llama Ranch
Sweetgrass Grazing
The Moon Oakland
The Weaving School
Tolenas Mohair
Tombstone Livestock
Vanya
Violet Hill Farm
Vreeseis Ltd
Wild Fiber Art Farm
Wild Garden Farm
Wild Rose Farm
WoolFul Love Farm & Fibers

Retail/School Members

A Verb For Keeping Warm
Fiber Circle Studio
West County Fiber Arts

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.)

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.

Bendio
Nancy Bluford
Fern Bradley
Jessica Carhart
Barry Deutsch
Paula Downing
Dana Friedman
Amy Herbst
Hannah Jaicks
Rosey Jencks
Rebecca Newburn

Ken Horwege
Destiny Kinal
Anne Kirk
Carol Lewis
Sarah Lillegard
Carolyn Madeo
Heather Marano
Sarah Martins
Bear McGuinness
Krystle Moody
Abby Neal
Vicki Nichols

Nell Painter
Liebe Patterson
Mary Reilly
Heather River
Barbara Ryan
Lila Ryan
Elizabeth Schwerer
Kirsten Sedestrom
Beth Sorensen
Constance Ulasewicz
Lisa Waterman

Volunteers

Pia Andersson
Erin Axelrod
Andrew Baskin
Mary Beckman
Christian Cain
Darby Ciampi
Ruth Falk
Thyme Francis
Greg Frechette
Amy Frugard
Dawn de la Fuente
Alexis Rae Jackson
Marnie Jackson
Kerry Keefe
Hiroko Kurihara
Martha Lightcap
Sarah Peterson
Megan Ratto
Jacob Saltzman
Courtney Scott
Jenn Shepard
Natalie Slanina
Gautum Sodera
Sarah Stapleton
Anna Stoffelbeam
Nicole Varney
Starre Vartan
Erin Walkenshaw
Mary Zuchowski



Fibershed Climate Beneficial Fashion Gala (Photo by Paige Green)

Project Partners

Hemp Research



SAM HAMLIN grew up in a rural community in the New River Valley of Southwest Virginia. She is passionate about popular education and community economic development. She has a wealth of experience as both an educator and a community organizer. This December, she completed her M.Ed. in Adult Education from North Carolina State University.



MADDY BARTSCH is a fiber artist, educator, and sustainable fiber and fashion systems activist working to bring awareness and action to the true cost and impact of our textile consumption. After graduating from the University of Minnesota with a BFA and minor in fashion studies, Maddy focused

on local fiber systems and began working her way from sheep to sweater, starting at the farm level where she learned about the agricultural side of owning sheep, to the next step in the process, working at a local fiber mill. A co-founder of the Three Rivers Fibershed, Maddy teaches classes around the Twin Cities at the Textile Center and at the Weavers Guild of Minnesota where she is on the board of directors. Maddy's artist practice is based in fibers and has expanded to include the growing of her own natural dye plants during Minnesota's sometimes finicky growing season.



TYLER JENKINS grew up and attended college in Mississippi before earning a graduate degree from Emory University's Rollins School of Public Health, with a focus on theory of social change and macrosocial health systems. Tyler's professional work has centered around developing strategy, partnership networks, and markets at the intersection of food systems, economic development and public health for various governmental and non-governmental organizations. These organizations include the North Carolina Department of Health and Human Services, the Center For a Livable Future at the Johns Hopkins

School of Public Health, the Center for Environmental Farming Systems at NC State University. In 2016, Tyler was awarded a cooperative development fellowship with The Democracy at Work Institute in Oakland, California, for his work in developing cooperative businesses and ecosystems in North Carolina. Tyler has launched and co-developed projects such as the BioRegen Innovations Cooperative, a 60-member agricultural group focused on growing bio-regenerative crops, and was instrumental in the organizing efforts that led to legalization of industrial hemp production in North Carolina. He has completed an apprenticeship at a diversified organic farm, and currently works as a landscaper installing edible and perennial gardens for residential and commercial clients. Aside from this work, Tyler is currently focused launching a new cooperative venture—Commonspace—which develops democratic workplaces and regenerative supply chains. He enjoys making music and being outside. His dog, Wallace, is currently perfecting the art of being a Labrador.



ARNOLD VALDEZ is the principle of Valdez & Associates and Rezolana Farm in San Luis, Colorado. In 1999-2000 Valdez was the recipient of Loeb Fellowship of Advanced Environmental Studies at Harvard University Graduate

School of Design. In 2008 Valdez was recognized as a George Pearl Fellow for his work and participation in the UNM Historic Preservation and Regionalism Graduate Certificate Program. As an Adjunct Associate Professor at the University of New Mexico School of Architecture and Planning he taught courses in alternative materials and methods of construction, cultural landscape planning, Preservation Technologies and Adaptive Reuse. He also co-taught courses on recording historic resources on Route 66—HABS Measured Drawings, and HAER—acequia documentation for La Cienega and La Bajada Acequias. The courses collaborated with the National Park Service, Santa Fe County and the Graduate Certificate Program in Historic Preservation at UNM.

Currently, Mr. Valdez is owner operator of Rezolana Farm, a Certified Naturally Grown farm specializing in growing heirloom crops/seeds and Industrial Hemp. The farm is irrigated from the Acequia de Cerro and onsite well.

Citizen Science



KELSEY BREWER graduated from University of California, Davis, with a Bachelor of Science in Plant Science and a minor in Soil Science. He spent several years as the Field Manager for Feeding Crane Farms, a biodiverse organic

vegetable farm, as well as Farm Manager at FARM Davis, a small-scale non-profit farm, both based near Sacramento, California. He has four years of research experience, covering diverse topics in the field of Agroecology, most recently focusing on the effects of diverse microbial populations on soil structure.

In addition to bolstering scientific protocol and data collection for the Fibershed project, Kelsey aims to expand upon the large array of ecological co-benefits provided through animal integration into agricultural systems.

Grazing School of the West



BRITTANY COLE BUSH is the eldest of 6 daughters, born to goodly parents in the southern coastal parts of California and now lives seasonally nomadic with her home-base in the Bay Area of California. She is a self-deemed modern day Shepherdess, doing the good work on land as a new pastoralist in the good food and fiber movement, avid in supporting the enlivening of the sheep industry in the West, restoring grasslands and managing fire hazardous vegetation. She is passionate about a new paradigm of land stewardship while raising healthy and happy animals for also food and fiber as she shepherds animals, people and projects.

True Blue Project



NICHOLAS WENNER is an engineering consultant in regenerative design and manufacturing. His experiences range from making and working with natural leathers and studying ancestral skills in the mountains of Eastern Washington to designing and making hand tools using computer modeling and CNC machining while earning a Master's in Mechanical Engineering at 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. Recent projects include developing a mushroom-based alternative to leather with MycoWorks and leading Fibershed's True Blue indigo dye project.

Fibershed Staff



REBECCA BURGESS is the founder and 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. She has built an extensive network of farmers and artisans within the Northern California Fibershed to pilot the regenerative fiber systems model at the community scale.



JESS DANIELS is the Project Manager for Fibershed's Education and Textile Economy Programs. She coordinates project development and research, manages communications strategy, and supports general operations. She holds a B.A. in Environmental Studies and Visual Art from Brown University, where she also completed textiles coursework at Rhode Island School of Design and studied with the International Honors Program 'Rethinking Globalization' program in India, Tanzania, New Zealand, and Mexico. Jess has over five years of non-profit experience working in sustainable agriculture as well as a lifelong love of textiles, and is an avid maker and explorer of all things fiber.



MARIE HOFF is the Producer Program Coordinator for the Northern California Fibershed. She facilitates administration, program assistance and communications for producer members. Additionally, she works on issues affecting the local fiber economy, developing policy around California wool, and working with a number of related organizations to grow and strengthen regenerative textile communities in California. She is also a producer member of the Fibershed herself, with Capella Grazing Project, and an advocate for regenerative agriculture.



HEATHER PODOLL holds an M.S. in Agricultural Ecology from UC Davis. She has spent the past 20 years involved with various aspects of study, practice, promotion and teaching of sustainable and organic food production systems, working with a range of nonprofit, philanthropic and educational organizations. She is currently developing educational programs in organic gardening and natural dye cultivation for her community in Marin County, California. A passionate knitter and spinner, she is delighted to bring together her background in ecological research and agricultural systems with a holistic and local perspective on fiber arts and production.

(Photos by Paige Green
and Alycia Lang)

Board of Directors

Our board was created to reflect the community that we serve, and represents farming, ranching, small business ownership, and those with hands-on fiber skills training.



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.

MARLIE DE SWART

Fiber skills educator and small business owner. Expert knitter, fiber scientist, and pattern drafter who has been working with fiber for over 40 years.

DUSTIN KAHN, SECRETARY/TREASURER

Graphic designer, and natural dye grower and instructor. Over 40 years of graphic design and marketing experience, as well as experience in organizing classes and events.

MARY PETTIS-SARLEY

Sheep rancher, educator living in Napa County. Over 40 years of experience blending fine art and ranching. She keeps an art career afloat, as well as her yarn company, Twirl, while managing over 200 fiber animals on the 2,000 acres that she's been care taking for over 20 years.

(Photos by Paige Green)



FIBERSHED

Local Fiber, Local Dye, Local Labor