Regenerative Agriculture

Wednesday 22 June: 14:05 – 15:00 (55 min)

With Speakers:

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Chief Operating Officer | Better Cotton

Facilitator:
Sponsored by:
Climate+ Strategy

At Textile Exchange, we’re guiding a growing community of brands, manufacturers, and farmers towards more purposeful production from the very start of the textile supply chain.

Our goal is to help the industry to achieve a 45% reduction in the emissions that come from producing fibers and raw materials by 2030. In doing so, we aim to help limit global warming to 1.5°C and repair the damage that’s been done.

We’re calling this pathway Climate+, because it’s about more than just emissions. Instead, it’s an interconnected approach that swaps siloed solutions for interdependent impact areas like soil health, water, and biodiversity.
Making Sense of the Swirl
Report Overview

Process:
• 25 stakeholder interviews in 5 categories
• Call for input
• 100+ reports, journal articles, other sources

Content:
• Background, definitions, and key frameworks
• Current science and considerations
• Supply network best practices
• Engagement pathway & matrix of programs
• Financing mechanisms
• Case studies
• Recommendations and next steps
Five key takeaways about regenerative agriculture for the fashion and textile industry

#1: A transition to regenerative agriculture is fundamental for the fashion and textile industry.

The long-term health of the sector will depend on how it is able to work with farmers to develop more resilient systems, and regenerative practices offer immense social and environmental benefits too.

#2: Regenerative agriculture can’t be defined in a single statement or set of practices.

It is contextual and nuanced, and instead calls for a holistic systems approach that puts humans and ecosystems at its core.

#3: Programs should be rooted in justice, equity, and livelihoods.

Indigenous advocates call for an acknowledgement of the Indigenous roots of regenerative agriculture and of past and current racial injustice to underpin future work.

#4: Regenerative agriculture is about much more than increasing soil carbon levels.

While evolving soil science is calling into question exactly how long-term soil carbon sequestration works, holistic regenerative systems have documented interdependent co-benefits related to biodiversity, water availability and quality, climate resilience, and livelihoods.

#5: We need to move out of silos to speed up the transition.

To advance the field of regenerative agriculture overall, apparel, textile, and footwear companies should also increase information-sharing with the food and beverage sector, ensuring that apparel brands influence the latest policy developments, financing models, and research initiatives.
What is Regenerative Agriculture?

While there is no standardized definition of regenerative agriculture, Textile Exchange takes the view that the concept must be inclusive of the following:

- A view of agriculture that works in alignment with natural systems, recognizing the value and resilience of interconnected and mutually beneficial ecosystems vs. extractive agricultural systems.
- An acknowledgement that Indigenous and native peoples have been employing this mindset to growing food and fiber for centuries—it is not a new concept.
- A holistic, place-based, systems approach, not a “one-size-fits-all” checklist of practices.

The above is part of the “working definition” submitted by Textile Exchange to be used for the updated UN Fashion Industry Charter on Climate Change (UNFCCC).
What is Regenerative Agriculture?

“These are indigenous practices! These practices have been done for centuries. How do you talk about regenerative farming without lifting up and giving credence to the indigenous people?”


A holistic framework

- Soil Health
- Biodiversity
- Carbon Sequestration
- Social Justice

*These 4 elements are supported by a 2020 review by Newton et al., “What is Regenerative Agriculture?”*
Carbon Tunnel Vision

Diagram: Carbon Tunnel Vision. Based on graphic by Jan Konietzko.
Engagement Pathway (Summary)

Step 1: Brand goals/targets
A) Which Ag system?
B) Which country/region?

Step 2: Identify possible project developers using Matrix and Map:

Step 3: Assess desired standards/certifications and other potential partners using Matrix:

Step 4: Understand which farm-level accounting tools will be used and the underlying methodology

Understand the difference between direct soil sampling, remote sensing, and modeling and how they are combined in these tools.

Determine how soil health, biodiversity, water, and justice outcomes will be measured in your project.

Step 5: Develop a specific financial model to support the project

If carbon credits are sought:
- Identify credible Carbon Credit Protocol using recent reviews

Step 6: Identify credible Carbon Credit Protocol:
- 14 Protocols Reviewed by Carbon Plan
- 12 Protocols Reviewed by EDF
## Matrix of regenerative programs

### Step 1: Project Developers

<table>
<thead>
<tr>
<th>Organization</th>
<th>Region</th>
<th>Ag System</th>
<th>Initiative Type/Functionality</th>
<th>Regenerative Agriculture Indicators Covered by Program</th>
<th>Other Roles</th>
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<td>Fibershed</td>
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<td>Intertribal Agriculture Council</td>
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<td>Native, A Public Benefit Corporation</td>
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<td>New Zealand Marine</td>
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<td>RebelLife</td>
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<td>RESET Regenerative Cotton Program (ECO Fashion Corp.)</td>
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<td>Savory (Land to Market)</td>
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|## Step 2: Standards & Certifications

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<th>Organization</th>
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<th>Initiative Type/Functionality</th>
<th>Regenerative Agriculture Indicators Covered by Program</th>
<th>Other Roles</th>
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<td>Audubon Conservation Banking Program</td>
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<td>Climate Beneficial™ Certified Fibers (Fibershed)</td>
<td>US (CA &amp; NV)</td>
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<td>Forest Stewardship Council - Ecosystem Services Procedure</td>
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<td>Generalized Regenerative Agriculture Sourcing Specification (GRASS) (GHP)</td>
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<td>Integral Trust (Sure)</td>
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<td>Land to Market (Savory)</td>
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<td>NATIVA™ Precious Fibers (Chargers Luxury Materials)</td>
<td>US, UK, AR, NZ</td>
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<td>Organic Certification (NOPI, NOP, EU) (see note)</td>
<td>Global</td>
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<td>REEL Regenerative Code (Cotton/Connect)</td>
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<td>Regenerative Agricultural Certification (Intertribal Agriculture Council)</td>
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<td>Global</td>
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<td>Regenerative Organic Certification™ (ROC) (Regenerative Organic Alliance)</td>
<td>Global</td>
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<td>Responsible Animal Fibers Standards (RWS, RMS, RAB) (Textile Exchange)</td>
<td>Global</td>
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<td>Soil Carbon Initiative</td>
<td>US</td>
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<td>Wildlife Friendly Enterprise Network</td>
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<td>ZDUX Platform (New Zealand Merino)</td>
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Map: Sample of project developers and regenerative agriculture pilot projects
Centuries of Indigenous knowledge and extensive scientific evidence show that regenerative practices are critical for community and ecosystem health. Rather than continuing in the current extractive system, brands must see regenerative agriculture as part of a fundamentally different approach.

Our report is a call to action for companies to start investing in pilot projects that are developed in full financial partnership with farmers, Indigenous communities, and researchers, generating more data on regenerative agriculture as they go.
Recommendations for Brands

Look into existing supply networks and identify areas of opportunity with interested producers.

Regenerative agriculture pilots are an opportunity to fundamentally rebuild sourcing models and align with an industry-wide push for direct connections and transparency down to the farm level.
Recommendations for Brands

Expand scientific and technical capacity to engage in regenerative agriculture

Companies should examine their staffing structures to expand their in-house or contracted capacity to engage in meaningful regenerative agriculture projects grounded in fast-evolving soil science. They should also consider investing in the role of technical service providers for regenerative practices to support farmers and growers on the ground.
Recommendations for Brands

Build on the rigor of existing certifications and standards

Interviews and research revealed an emerging consensus against the development of additional new standards or certifications for regenerative agriculture. Instead, the industry could assess the development of “add-on modules” that respect the rigor of existing standards while assessing outcomes for soil health, water systems, biodiversity, and social justice.
Recommendations for Brands

Develop long-term contracts and creative financing mechanisms.

Investing alongside farmers and growers means sharing the risk of transitioning to regenerative practices. In addition to long-term purchasing contracts, brands should seek a combination of funding sources across the organization to ensure that the success of the project is a shared financial goal.

- Marketing, CSR, Operations Budgets
- Charitable Arm / Foundation
- Impact Incentives
- Creative use of Integrated Capital; many emerging models

Diagram: Adapted from and used by permission of RSF Social Finance
2022 Engagement Opportunities – Textile Exchange Regenerative Agriculture Community of Practice

- Participate in Textile Exchange’s Regenerative Agriculture Action Cohort.
- Become a project sponsor of Textile Exchange’s “Phase 2” regenerative agriculture research.
- Engage in action projects within Textile Exchange’s Round Tables.

- Be in touch:
  sarahk@commthreadsconsulting.com
  beth@textileexchange.org
Thank you

- Project Team
- Textile Exchange advisory group
- Interviewees
- Advance reviewers
- Project Sponsors
Better Cotton and Sustainable Land Management Telangana:
Telangana: A Snap shot

- Semi arid tropical conditions
- 164% increase in Cotton area last two decade
- 56% of net cultivated area under Cotton in the state
- Cotton mostly grown as rain fed crop in monsoon (Kharif) season
- Average annual rainfall is 980 mm
- Uneven rainfall – Deviation ranges from -42% to +62%
- Frequency of Long dry spells increased-11 events in last 15 years
- Micro bursts at least 3 in last six years
Key sustainable issues: Cotton

- Indiscriminate use of fertilizers
- Inefficient conservation/irrigation practices
- Regular inter-cultivation

- Soil erosion
  - Low soil moisture
  - Impact plant health
  - Increased pest complex
  - Indiscriminate use of fertilizers
  - Requirement for more nutrient/Pesticides

- Increased nutrient/pesticide use
- Loss of SOC/carbon stock
- Loss in Yield/Productivity
- Soil nutrient loss

- Increased GHGs
- Long dry spells
- Untimely rains/microbursts
- Uneven rainfall

Increased GHGs
Sustainable land Management in Cotton ecosystems

Regenerative agriculture practices – on farm
  • Develop Regenerative Agriculture protocol and demonstrate
  • GHG emission studies
  • Monitor Soil Organic Carbon

Agroforestry in Cotton ecosystems
  • Promote and develop successful Agroforestry models
  • Study the land degradation/ C sequestration studies

Plantation in Wetland catchment: Reduce runoff
  • Soil erodibility Map
  • Plantation on degraded/ riparian/ hill areas
<table>
<thead>
<tr>
<th>S. No.</th>
<th>Principle/Objective</th>
<th>Activity</th>
<th>SOC +ve</th>
<th>Soil erosion control</th>
<th>Biodiversity +ve</th>
<th>Adoptability</th>
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<tr>
<td>1</td>
<td>Minimize tillage</td>
<td>Low tillage / avoid tillage for weeding</td>
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<td>Controlled traffic</td>
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<td>2</td>
<td>Maintain Soil cover</td>
<td>Cover Crop</td>
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<td>Green leaf manuring</td>
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<td>3</td>
<td>Adding soil OC (10)</td>
<td>Manure application</td>
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<td>Sequester Carbon</td>
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<td>5</td>
<td>Foster plant diversity</td>
<td>Crop rotation</td>
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<td>Intercropping / mixed cropping</td>
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<td>6</td>
<td>Avoid pesticides/</td>
<td>No pesticides for first 45 days IPM</td>
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<td>7</td>
<td>Water quality</td>
<td>Less Fertilisers (Urea replaced by foliar application of nano Nitrogen)</td>
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<td>Soil test based application</td>
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* Not significant/ not possible (Inspired by Gillie et al.)

++ Least possible/ low impact, ++ medium possible/impact, +++ Possible / better impact
Agroforestry in Cotton ecosystems: Progress

- Consultation with the farmers for net planning
- Selection of areas through Soil erodability Mapping
- Finalize AF models - Designing/layout with farmers
- Scoping to link with the government schemes
- Sapling Collection from Government support Private Nurseries
- Monitoring Data collection Geo tagging Survival rate calculations

Consultation with the farmers for net planning
Selection of areas through Soil erodability Mapping
Finalize AF models - Designing/layout with farmers
Scoping to link with the government schemes
Sapling Collection from Government support Private Nurseries
Monitoring Data collection Geo tagging Survival rate calculations
Suggested Agroforestry Models in Cotton ecosystems

**Mango based / Fruit based** – Mango+ Cotton Model – Preferable in Private lands/ with minimum irrigation facility

**Bamboo based** – Preferable in Community/ Degraded lands/ with medium to high slope

**Bamboo based** – Bund plantation in Cotton lands with sandy-slopy lands

**Acacia Nilotica based** – Tank shore areas and Fringe areas of hillocks

**Teak based** – Bund and Alley plantation in private lands

**Mixed Fruit/ Timber** – Ridge areas – fringe of hillock areas
Plantation in Degraded and Riparian Areas: Progress

Selection of Areas
- Community lands
- Forest fringe areas/ buffer
- Ridge Areas

Consultations with Community
- Community/ Societies
- Gram Panchayat/ Revenue Department
- Forest Department / NREGS

Agreement with Community
- Division of work (pitting/ sapling/ watering)
- Agreement for maintenance of plantation

Plantation
- Pitting & digging by NREGS
- Plantation/ Arranging Saplings
- Management by Community/ authority
Agroforestry in Cotton ecosystems: Progress

- **3887** Farmers adopted AF models
- **1827.2 Ha** Private cotton farms land covered under AF models
- **710.4 Ha** of degraded/ Community lands covered
- **138691** Plantation completed
- **73%** Survival rate in the first year
Result – Outcome - Impacts

**Result**
- 39092 farmers under Better Cotton project
- 24304 Ha under Better Cotton
- 1543 farmers benefited with Agroforestry
- 1027 Ha under Agroforestry
- 710 Ha Covered with plantations
- 138691 plantations completed
- 40000 seed balls dispersed

**Outcome**
- 17% Reduction in synthetic fertilizers
- 30% Reduction in Pesticides
- 7% Increase in yield
- 21% improvement in net income

**Impact**
- 31.8 % reduction in GHG emission in Better Cotton
- 42% reduction in Soil Erosion
- 4408 Ts Co2 sequestration
Challenges and learnings

**Challenges**

- Availability of quality saplings is difficult
- Cost of establishment is high for an agroforestry model
- Maintain the trees for better survival rate in the initial years is challenging
- FCRA Amendment & COVID restrictions have impact on planning local collaborations on field monitoring-planning

**Adaptive Strategies**

- Recommending wide range of AF models
- Project arranged best saplings – Encouraging FPCL for nursery establishment
- Linking with the government programmes for initial financial Support

**Learnings**

- Agroforestry models can easily attract farmers, if the local market facilities are available
- Technical feasibility of the Models to be verified for better results
- Net planning for farmer choices is important to design models
- Great support from Governments on plantations
Thankyou
Thank you