

RESTORING SOIL.  
REBUILDING RESILIENT FOOD SYSTEMS.

# REGENERATIVE AGRICULTURE

LOW-CARBON SUPPLY CHAINS  
THROUGH REGENERATIVE FARMING

WHERE AGRICULTURE, CARBON &  
BIODIVERSITY CONVERGE

SOIL CARBON  
MRV INSIGHTS

4.82%  
SOIL ORGANIC  
CARBON

CARBON CREDITS

CO<sub>2</sub>e  
REMOVED  
1,250  
TONS

TRACEABLE SUPPLY CHAIN

SOIL CARBON RESTORATION

DIGITAL MRV & TRACEABILITY

REGENERATIVE SUPPLY CHAINS

CLIMATE-RESILIENT FARMING

PREPARED FOR CORPORATE LEADERS & CLIMATE-TECH STAKEHOLDERS

## ***Agriculture & Farming Regenerative Agriculture***

*This section provides key inputs on Regenerative Agriculture Opportunities for corporate leaders.*

### **Highlights**

- Regenerative practices improve soil carbon, biodiversity, water retention, and resilience while reducing fertilizer and input emission
- Corporates are adopting regenerative sourcing to meet Scope 3 targets, climate commitments, and traceability requirements
- Reduced chemical inputs, improved yields over time, and resilience to climate shocks strengthen farmer and investor economics
- Advances in soil sensing, satellite data, and AI enable credible measurement of outcomes, unlocking carbon and ecosystem service markets

### **Key recommendations for corporate leaders include:**

- Partner with food processors, FMCG brands, and agri-exporters to secure demand and farmer adoption
- Use data, advisory, and incentives to drive adoption, compliance, and outcome verification
- Combine productivity gains from your solutions, premium pricing, carbon credits, and ecosystem services to improve unit economics

## Opportunity Snapshot: Regenerative Agriculture

Adopt farming practices & solutions to improve soil health and sequester carbon

### Market Signal

- **Rising demand for sustainable sourcing** from global FMCG and agri buyers
- **Increasing adoption** in large agri value chains (cotton, rice, wheat)
- **Annual Market size by 2030:** 20,000 - 25,000 ₹ Cr



### What Makes or Breaks It?

- **Farmer aggregation** (FPOs, cooperatives) for scale
- **Reliable MRV systems for carbon credit verification**
- Long-term offtake by FMCG/agri companies for sustainable sourcing

### Why It Matters NOW?

- **Declining soil organic carbon** causing 10–20% yield loss in key crops
- Scope 3 targets forcing FMCG/agri buyers toward **low-carbon sourcing**
- **₹1,500–3,000/acre potential** via soil carbon credits



### Well Aligned Opportunity for

- **Agri-tech startups and platforms**
- **FMCG and food companies** (supply chain integration)
- **Carbon credit developers and NGOs**



### Key Challenges

- **Soil carbon MRV complexity** (sampling & verification costs)
- Small landholdings (<2 ha) causing **scaling challenges**



### Business Model

- Work with FPOs to implement regenerative practices
- Generate and monetize soil carbon credits
- Partner with FMCG companies for sustainable sourcing contracts

## Introduction and Business Case

Regenerative agriculture seeks to restore natural systems rather than merely sustain them. It shifts the agricultural paradigm from input-intensive production to soil-centric, biodiversity-enhancing and resource-efficient farming systems. Farmers can rebuild soil organic matter, enhance water retention, reduce dependency on chemical inputs and create healthier agroecosystems.

While the success regenerative agriculture requires a success in a combination of multiple dimensions - farmer education, clear but adaptive processes and technologies, and a long-term perspective - it strengthens rural economies, empowers smallholders and restores ecological balance, making it not just an agricultural practice, but a holistic development strategy for India's future. Developing and implementing such a comprehensive solution also implies significant business opportunities all along the value chain, for multiple, diverse stakeholders.

## Market Potential for Regenerative Agriculture in India

Year	Market Size (₹ Cr)	Area Outlook	Drivers
2025	3,000 - 4,000	1 Million ha	Policy & public programmes, corporate sourcing & market premiums
2030	20,000 - 25,000	5 Million ha	Carbon finance & voluntary market, input substitutions & bioinputs
2040	1,00,000 - 1,25,000	20 Million ha	Climate risk & resilience need, digital & agri scale-up

## Market Segments and Applications

Segment	Applications	Business Model	Key Drivers
Regenerative Crop Production Systems	Grains, oilseeds, specialty crops	Advisory + input optimization + outcome payments	Soil health improvement, yield resilience, carbon reduction
Regenerative Livestock & Dairy Systems	Milk, beef, grazing systems	Long-term sourcing contracts + premiums	Methane reduction, animal welfare, land regeneration
Soil Carbon & Ecosystem Services Markets	Carbon credits, biodiversity credits, water services	Platform-based marketplaces + MRV fees	Corporate net-zero targets, nature-based solutions demand

Digital Agronomy & Decision Support	Farm planning, input reduction, practice tracking	SaaS + per-acre subscriptions	Data-driven efficiency and practice verification
Regenerative Supply Chain Programs	Food & fiber traceability, sustainable sourcing	Brand-led premiums + long-term farmer partnerships	Consumer and retailer sustainability commitments
Outcome-Based Advisory & Payments	Soil health, yield stability, ecosystem outcomes	Advisory fees + performance-linked payments	Shift from practice-based to outcome-based regen
Low-Carbon / Climate-Smart Inputs	Fertilizer optimization, nutrient efficiency	Input sales tied to emissions metrics	Fertilizer emissions regulation and efficiency mandates
Regenerative Finance & Insurance	Transition financing, risk-sharing products	Blended finance, insurance premium reduction	De-risking farmer transition and capital access

### Underlying Technologies & Processes

Element	Options	Key Traits
Soil Biology	Reduced chemical fertilizer use, enhanced nutrient availability, improved soil structure	Rebuild soil organic matter, microbial activity and nutrient cycles
Crop System	Reduced soil disturbance, improved soil carbon retention, lower diesel costs	Diversify cropping patterns and reduce soil disturbance
Water & Irrigation	Enhances groundwater availability and drought resilience	Enhances water efficiency using nature-based and engineered systems
Agroforestry	Carbon sequestration, windbreaks, reduced erosion, improved biodiversity	Integrating trees into cropping systems to build biomass, improve microclimates and store carbon
Livestock Integration Processes	Balanced nutrient flows, reduced external feed demand	Nutrient recycling and soil fertility
Digital & MRV	Verified carbon removals/reductions and premium supply-chain certification	Scaling regenerative agriculture, securing premiums and enabling carbon finance
Regenerative Input Manufacturing & Delivery Models	Emerging models that enable adoption at scale	On-farm biofertilizer fermenters, Local agronomist

		networks, Bulk input distribution
Market Mechanisms (carbon, premiums, traceability)	Soil carbon credits, Climate-resilient rice and wheat sourcing, Data-driven risk scoring	Systems that make regenerative agriculture commercially viable

## Key Challenges

Challenge Area	Key Issues	Business Impact	India Specific	Strategic Implications
Farmer Adoption & Transition Risk	Yield uncertainty during transition from conventional to regenerative practices	Slow adoption and scalability challenges	Smallholder-dominated farming; risk aversion due to income dependence	Need transition incentives, technical support, and guaranteed offtake models
Monetization & Profitability Pathways	Difficulty capturing premium pricing or carbon revenue	Unclear ROI for corporates and farmers	Limited domestic markets for regenerative premiums; early-stage carbon markets	Develop bundled revenue streams (carbon credits, premium sourcing)
Supply Chain Traceability & Data Challenges	Measuring soil health and verifying regenerative outcomes is complex	Limits ESG credibility and market differentiation	Fragmented supply chains; lack of digital infrastructure in rural areas	Investment in digital MRV and traceability systems essential
Regional Agro-Climatic Variability	Practices must be tailored to soil type, crop, and climate conditions	Increased implementation complexity and slower scaling	Diverse agro-climatic zones across India	Localized models and region-specific agronomy expertise required
Policy, Financing & Ecosystem Gaps	Limited policy clarity and financing structures for regenerative agriculture	Slower investment and ecosystem development	Subsidy structures favor conventional inputs; evolving sustainability frameworks	Public-private partnerships and blended finance approaches important

## Prominent Players in the Indian Market

Company / Entity	Focus Areas
Mahindra Agribusiness	Biofertilizers, organic inputs, farmer training
KisanKraft	Organic farming aids, tools & input solutions
IFFCO (Indian Farmers Fertiliser Co-op)	Biofertilizers, microbial products & soil ameliorants
Rallis India (Tata)	Crop nutrition + organic/bio options
VST Tillers Tractors	No-till drills, tillage tools
Sonalika Tractors	Farm mechanization, implements ecosystem
TAFE (Tractors & Farm Equipment)	Implements that support soil-friendly practices
Stellapps	IoT + data analytics for farm performance, dairy linkage
Fasal	Field analytics, weather & crop insights
Ecozen	Sensor & solar-powered IoT systems for data capture

## Innovation Perspectives

Innovation	Business Opportunity	For Senior Management
Outcome-Based Regenerative Platforms	Monetize regen via measured outcomes, not practice checklists	Creates recurring, defensible revenue beyond input sales
Soil Carbon + Nature Credit Stacking	Multi-credit marketplaces with premium pricing	Expands revenue per acre; avoids carbon-only commoditization
Digital Regen Operating Systems	Become the “OS of regenerative farming”	Data moats and high switching costs
Regenerative Supply-Chain Lock-In	Secure resilient supply at predictable cost	Converts sustainability into supply security advantage
Biologicals as Systems, Not	Subscription-style bio-solutions	Shifts ag-inputs from

Products		commodity to solution-based pricing
Smallholder Regen at Scale	Control high-impact tropical supply chains	Access growth markets + strong ESG capital pull
Transition Finance & Risk-Sharing	De-risk farmer adoption at scale	Unlocks faster adoption and acreage growth
Livestock Methane & Soil Systems	Premium low-emissions animal protein	Addresses one of agriculture's hardest emissions sources
Regenerative Data as an Asset	Sell insights to food, finance, and insurers	Data monetization beyond farming itself

### Concentric & Satellite Opportunities

- Precision No-Till Seeding & Planting OEMs: Equipment providers developing multi-row, high-residue handling seed drills and planters for minimum soil disturbance and accurate cover crop seeding.
- Biological Input Manufacturing: Scalable, local production of biofertilizers, biostimulants and microbial inoculants to replace or reduce synthetic inputs and enhance soil biology.
- Agroforestry and Silvopasture Implementation Services: Specialized services (analytics, design, tree/shrub supply) for integrating perennial crops, trees, or managed livestock into annual cropping systems.
- Next-Gen Cover Crop Seed Genetics: R&D and seed companies focused on developing and commercializing cover crop varieties optimized for local conditions, nutrient cycling and high biomass production.
- In-Field Soil Health Sensor and Testing Kits: Concentric providers of affordable, rapid-deployment soil sensors (moisture, pH, nutrient) and easy-to-use testing kits for on-farm microbial and soil organic carbon (SOC) monitoring.
- Satellite & AI-Powered MRV Platforms: Digital platforms using remote sensing and machine learning (ML) to monitor, report and verify regenerative practices (cover crops, tillage, rotation) at scale for carbon credit issuance.
- Regenerative Sourcing and Premium Marketplaces: B2B platforms connecting food, fiber and consumer packaged goods (CPG) companies with verified regenerative farmers, often commanding a price premium for traceable, low-impact products.
- Transition Finance and Risk De-risking Funds: Investment vehicles and financial products (e.g., low-interest loans, insurance products) tailored to cover farmers' transition costs and yield volatility during the first 3-5 years of adoption.
- Digital Agronomic Advisory and Modeling Tools: Software-as-a-Service (SaaS) tools providing farm-specific, AI-driven prescriptive advice on rotations, cover crop mixes and grazing patterns to maximize ecological and economic outcomes.

## Key Takeaway for Senior Management

Takeaway	Details
Regenerative agriculture is emerging as climate + supply-chain infrastructure, not a CSR program	<ul style="list-style-type: none"> <li>It directly addresses Scope 3 emissions, water risk, and supply resilience for food, FMCG, textiles, and bio-based industries</li> <li><b>Examples:</b> regenerative cotton for apparel brands; regenerative grains for food processors</li> <li><b>Competitive advantage:</b> resilient, low-risk supply chains with measurable climate benefits</li> </ul>
Farmer economics determine scalability more than climate intent	<ul style="list-style-type: none"> <li>Adoption sticks only when productivity, input costs, and income stability improve</li> <li><b>Sub-components:</b> reduced synthetic fertilizers, improved soil health, yield stability, premium pricing</li> <li><b>Suggested innovation focus:</b> incentive design, risk-sharing, and transition financing</li> </ul>
Digital MRV is the unlock for scale and monetization	<ul style="list-style-type: none"> <li>Credible measurement enables payments, premiums, and carbon markets</li> <li><b>Examples:</b> satellite imagery, soil sampling, AI-based yield and carbon estimation, digital farm records</li> <li><b>Competitive advantage:</b> access to carbon credits, ecosystem services, and buyer trust</li> </ul>
Bundling value streams improves unit economics	<ul style="list-style-type: none"> <li>Single-revenue models underperform</li> <li><b>Examples:</b> yield gains + premium offtake + soil carbon credits + water/biodiversity benefits</li> <li><b>Competitive advantage:</b> superior IRRs and resilience to price volatility</li> </ul>
Program design must be crop- and region-specific	<ul style="list-style-type: none"> <li>One-size-fits-all approaches dilute impact and credibility</li> <li><b>Examples:</b> cover crops for row crops; agroforestry for perennial systems; nutrient optimization by soil type</li> <li><b>Recommended innovation focus:</b> localized agronomy and adaptive playbooks</li> <li><b>Competitive advantage:</b> measurable outcomes and faster scale across geographies</li> </ul>

## Next Steps for Corporate Leaders

Regenerative agriculture is transitioning from pilot programs to large-scale supply chain strategies as food, FMCG, retail, and textile brands pursue Scope 3 emission reduction, soil carbon outcomes, biodiversity goals, and climate-resilient sourcing. Practices such as cover cropping, reduced tillage, optimized input use, crop diversification, agroforestry, and grazing management are being integrated with digital MRV, carbon markets, and farmer enablement programs. As procurement standards evolve and investors scrutinize sustainability claims, regenerative agriculture is shifting from an agronomy-led narrative to a strategic climate and supply chain lever.

This could be an attractive climate tech opportunity for industries and firms in specific sectors and industries keen on catering to this market.

**Connect with Team EAI to know more about this opportunity and take your corporate's initial steps. Send a note to [consult@eai.in](mailto:consult@eai.in) or talk to Muthukrishnan - 9952910083**