Model 4

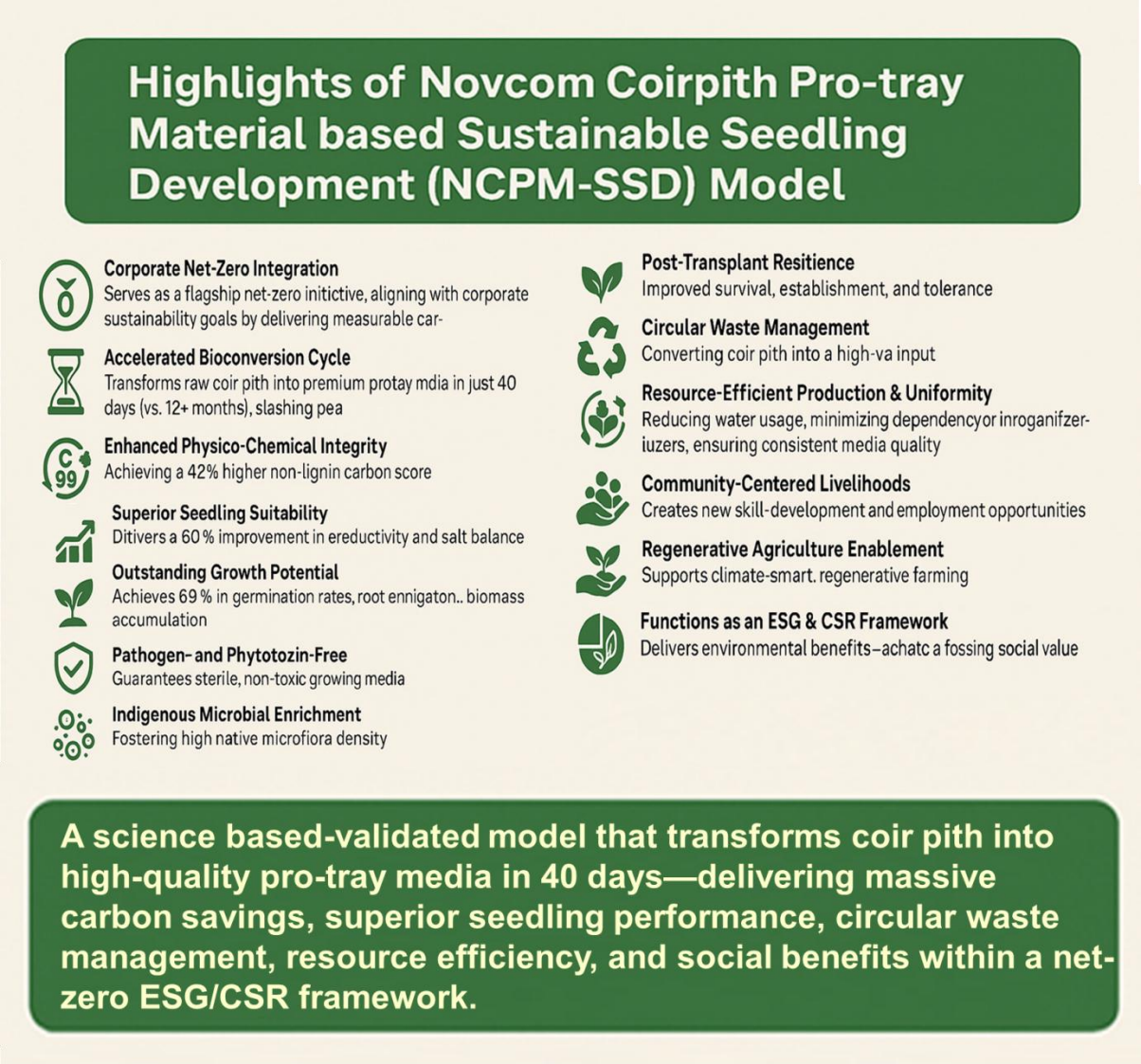
Novcom Coirpith Pro-tray Material based Sustainable Seedling Development (NCPM-SSD) Model–(Recycling of Coir Pith to develop an ideal Pro- Tray Material : A Science-Driven Model for producing Healthy Seedlings towards sustainable low input agriculture (and Creating a Carbon Sink)

Recycling coir pith into pro-tray growing media via Novcom Composting Technology presents an innovative, science-driven approach that simultaneously promotes seedling vigor and environmental responsibility. Pro-tray substrates must create an optimal root environment—any immature or inadequately processed material can hinder early growth, inflate labor and input costs, elevate disease risk, and ultimately compromise sustainable agriculture. Traditional methods often require over a year for coir pith to decompose, yet even after this lengthy period the resulting media frequently falls short of ideal standards: it may lack balanced nutrition, sufficient microbial activity, and freedom from excessive salts or phytotoxins. In contrast, the Novcom Coir Pith Pro-Tray process reduces this conversion to just forty days, producing a rigorously tested growing medium whose scoring on physicochemical properties are 42 % superior (as measured by non-lignin carbon in organic matter), whose Seedling Suitability Score (reflecting electrical conductivity, sodium, and potassium levels) is 60 % higher, and whose Seedling Growth Potential Score (encompassing germination rate, root elongation, and biomass accumulation) is 69 % greater. By accelerating bioconversion so dramatically, this technology cuts greenhouse gas emissions by up to 99 %—thereby curbing methane release from coir pith waste—and establishes a robust carbon sink that underpins truly sustainable cultivation. Comparative post-transplant studies reveal that seedlings grown in Novcom pro-tray media exhibit superior survival, stronger root and shoot development, and enhanced tolerance to climatic stressors, laying a foundation for higher transplantation success. Crucially, the Novcom process fosters the self-generation of abundant native microflora within the pro-tray substrate; upon transplant, these beneficial microorganisms quickly colonize the seedling's rhizosphere, improving establishment and growth, creating a microbial barrier against soilborne pathogens, and delivering effects comparable to precision microbial enrichment programs. As the first technology of its kind, it empowers corporates to pursue net-zero targets, implement comprehensive decarbonization strategies, and contribute to global Sustainable Development Goals—all while ensuring seedlings receive the optimal support they need to thrive. Widespread adoption of Novcom

composting could be a game changer for the farmers with coir pith growing media, providing uniform product quality, reducing processing time and operating costs, lowering fire risk during dry months, minimizing disease threats at the seedling stage, and yielding climate-resilient seedlings with high post-transplant survival and vigorous growth.

Highlights of Novcom Coirpith Pro-tray Material based Sustainable Seedling Development (NCPM-SSD) Model

The key features of the Novcom Coirpith Pro-tray Material based Sustainable Seedling Development (NCPM-SSD) Model, are as follows



The key features of the Novcom Coirpith Pro-tray Material based Sustainable Seedling Development (NCPM-SSD) Model, are as follows

- **Corporate Net-Zero Integration**: Serves as a flagship net-zero initiative, aligning with corporate sustainability goals by delivering measurable carbon reductions and broader environmental and social impacts.
- **Accelerated Bioconversion Cycle**: Transforms raw coir pith into premium pro-tray media in just 40 days (vs. 12+ months), slashing processing time, labor inputs, and energy consumption.
- **Significant Carbon Savings**: Cuts methane emissions from coir pith waste by up to 99 %, establishing a verified carbon sink that contributes to company-wide decarbonization targets.
- **Enhanced Physico-Chemical Integrity**: Achieves a 42 % higher non-lignin carbon score, ensuring optimized nutrient availability and reduced reliance on synthetic amendments.
- **Superior Seedling Suitability**: Delivers a 60 % improvement in electrical conductivity and salt balance—critical for healthy root development—minimizing early-stage crop losses.
- **Outstanding Growth Potential**: Drives a 69 % uplift in germination rates, root elongation, and biomass accumulation, translating to higher yields and reduced replanting costs.
- **Pathogen- and Phytotoxin-Free**: Guarantees sterile, non-toxic growing media, lowering disease risk and chemical pesticide usage, which supports worker safety and consumer health.
- **Indigenous Microbial Enrichment**: Fosters high native microflora density that, upon transplantation, colonizes the rhizosphere—creating a natural biocontrol barrier and reducing reliance on external microbial inoculants.
- **Post-Transplant Resilience**: Seedlings show improved survival, accelerated establishment, and enhanced tolerance to heat, drought, and pest pressures—strengthening supply chain reliability.
- **Circular Waste Management**: Converts a low-value byproduct (coir pith) into a high-value input, reducing landfill burden, mitigating fire hazards, and generating rural employment in composting operations.
- **Resource-Efficient Production & Uniformity**: Reduces water usage (through higher moisture retention) and minimizes dependency on inorganic fertilizers—delivering cost savings, ensure consistent media quality across production runs, and enhancing farmer trust.
- **Community-Centered Livelihoods**: Creates new skill-development and employment opportunities for smallholder cooperatives, promoting inclusive growth and rural empowerment.
- **Regenerative Agriculture Enablement**: Supports climate-smart, regenerative farming by providing a biologically active substrate that improves soil health and long-term field productivity.
- **Functions as an ESG & CSR Framework:** Delivers environmental benefits—such as carbon sequestration, waste minimization, and water efficiency—while fostering social value through job creation, improved community health, and reduced chemical exposure, making it a scalable, high-impact model for corporate responsibility.