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Green Income from Brown Fields: The Next Farm Earnings Through Carbon Credits

Chandra Kumar*, Prof. Hulas Pathak

Introduction:

Climate change used to be a distant threat, but today it's a real factor shaping every aspect of farming from growing and caring for crops to running and maintaining agricultural operations. Agriculture at a simple factory of food production now stands literally at that crossroads where climate pressures meet human ingenuity and farmers worldwide are finding that in safeguarding the land comes a new avenue of money churning opportunities in the form of carbon credits. This initiative which has come up with the name "Green Income from Brown Fields" repurposes old neglected land as not only being earth friendly but also as financially lucrative.

The one area that is exceptional in terms of the type and quantity of greenhouse gases produced is farming. The gases produced in farming come from methane produced by livestock, nitrous oxide produced by fertilizer use, and carbon dioxide produced as a result of turning natural habitats into farmland. However, farmland is a contradictory category because it is both a source and a sink of carbon. There is every chance today that a future may arrive wherein the carbon sequestrated by farmland outweighs the carbon released. Now, to sequester carbon through sustainable and climate-resililient agricultural practices such as cover crops, agroforestry systems, and reduced-till agriculture, takes time and effort and costs money as well. This is where carbon credits become important—they enable farmers to earn money while doing the right thing and monetizing nature and its protection.

What are carbon credits,

A carbon credit represents one metric ton of CO2 that has been reduced from the atmosphere. Carbon credits are usually traded to a company or an organization to offset their additional carbon emissions.

There are two major markets:

- Compliance markets: Regulated by the government emission schemes.
- Voluntary markets: Where companies purchase credits on a voluntary basis either for their sustainability goals or to add brand value.

Farmers can make carbon credits to sell

Chandra Kumar*, Prof. Hulas Pathak
Ph.d. Research scholar,*
Professor and Head of Department,
Department of agribusiness and rural management, IGKV, Raipur

in these markets when they apply certified carbon sequestering practices and when such results are measured and verified.

How can farmers generate revenue from carbon credits

Farmers adopting climate-smart agricultural practices to earn carbon credits. because such practices promote the sequestration of carbon in agricultural soil and product, as opposed to agricultural practices that emit high levels of GHGs. Carbon credits are defined in terms of the amount of CO2 (one ton) that is either removed from or reduced from the atmosphere. Farmers that implement these types of practices in their operations typically generate product revenues from these operations based on four major practice paths:

- Conservation tillage practices minimize the soil disturbance, which increases the soil's ability to hold carbon and nutrient.
- Cover cropping help in increasing nutrients in the soil even if it is not under a mono croping system.
- Agroforestry involves a combination of trees, crop and livestock systems, which enhances sequestered carbon and soil fertility.
- More intelligent livestock production: improved feed and manure can cut methane production.
- Efficient fertilizer use cuts down the excess use of the nitrous fertilizers.

To qualify for carbon credits through these practices, farmers must document environmental improvements through scientific quantification, including soil tests and remote sensing, as well as obtaining independent verification.

Cash to Carbon: Earning with Carbon Credits

Carbon credit earnings can become a regular, supplementary source of income for

Practice	How It Works	Carbon Benefit	Bonus for Farmers
Conservation Tillage	Minimal plowing keeps soil intact.	Locks 0.5–2 t CO_2/ha/year in soil.	Saves fuel, reduces erosion, boosts yields.
Cover Cropping	Plant legumes/grasses in off-season.	Builds soil organic matter by 1–3%.	Improves fertility, suppresses weeds.
Agroforestry	Add trees to fields and pastures.	Stores 2–5 t CO_2/ha/year in biomass.	Shade for livestock, extra timber income.
Improved Livestock	Better feed + manure digesters/composting.	Cuts methane by 20–50%.	Healthier animals, less waste odor.
Efficient Fertilizers	Precision application (drip/soil tests).	Reduces N_2O by 30–40%.	Lowers input costs, healthier crops.

farmers, apart from sale of produce and farm products. Take, for example, a hectare that can attract 2 tons of CO_2, which is worth ₹1,000 each. Such a hectare will generate ₹2,000 as carbon credits. Spread this over the average farm size in India, which is 5 hectares, with a similar ability to lock away carbon, and an additional ₹10,000 can be generated every year, which can be spent on seeds, agricultural implements, or even family expenses.

There are several programs with lucrative profit-sharing potential that pay farmers between 2,000 and 5,000 rupees per acre on an annual basis. This is very beneficial for farmers who face unpredictable prices due to climate or other external factors. For some states in India, it has been reported that 10-20% of family income is obtained from the sale of carbon credits. This is a great potential to enhance family income based on carbon sequestration.

A number of roadblocks need to be addressed before all farmers will be able to capitalize on this new opportunity:

- In many cases, smallholder farmers are forced to sell their carbon credits through dealers and do not have access to the market directly.
- Verification of carbon credits requires an outlay of capital on the part of buyers/sellers.
- Access to education impacts the adoption of new practices in agriculture.
- The uncertainty of price structure prevents farmers from determining revenue they will derive from their products.

To address these obstacles, governments must provide assistance to farmers through governmental scheme, cooperative support networks for small farm holders (e.g., farmer cooperatives, farmer associations, etc.)

Transition from Agriculture to Carbon Farming

Governmental policies should be established to facilitate the creation of green revenue through collaborative approaches that lessen both the barriers to, and expense of, engaging farmers in a green economy by: Collaborating through an aggregator or cooperative approach allows farmers to share information about their carbon sources, thus providing farmers with access to additional revenue through improved pricing. Using two technologies to increase the speed and efficacy of carbon credit verification -satellite remote sensing and blockchain -will significantly lower costs of verification. Green Financing (Climate Funds, Green Bonds) provides early-stage capital for farmers in developing nations.

India has linked India's Carbon Credits Program to Climate Resiliency & Rural Development initiatives. A focus for Carbon Credits is on vulnerable populations & areas such as: Chhattisgarh, Jharkhand, & Odisha.

Creation of Carbon Farming opportunities go beyond increasing farmer revenues:

1. Soil Health and Nutrient-Richness
2. Optimal Water Use and Reduced Irrigation Dependency
3. Biodiversity through Multiple Agricultural Systems
4. Resilience to Flooding/Drought.

Through Carbon Farming's ability to provide sustainable, productive agricultural systems as well as through their ability to support the Ecosystem and Community they are connected.

Conclusion:

The agriculture sector is at a crossroads, being both a contributor to greenhouse gas emissions and a solution to the problem. Carbon farming, agriculture's new identity, is not just the growth of food but the conservation of the planet's carbon. With climate-resilient agriculture techniques such as conservation agriculture, agroforestry, and improved fertilizer use, farming communities can cultivate better soil, increased crop yields, and a brand-new income stream. However, the key to mainstream adoption is that there are no hurdles, such as proper policies, easy access to digital verification, or easy access to funding. A combined initiative would allow "green income from brown fields" to be a long-held dream. Finally, carbon farming is not just a solution but the emergence of a new outlook on rural resilience, conservation, and economic empowerment for farming communities in India.