

LESSONS FOR THE EU'S CARBON FARMING PLAN

Structural flaws plague U.S. agriculture carbon credits

INTRODUCTION

As Europe considers a carbon removal framework that includes so-called “carbon farming” from the agriculture sector to meet its net zero goal by 2050, the U.S. experience with agriculture carbon offset credits should raise questions about whether such an approach is desirable or feasible. Agriculture carbon markets have floundered in the U.S. for more than a decade, making no discernable impact on emission reductions as they open the door for polluters to greenwash. Many farmers, environmentalists and scientists are now questioning whether structural flaws with soil carbon credits can ever make them part of credible climate policy.

U.S. farmers' skepticism of agriculture carbon credits is partially informed by the collapse of the Chicago Climate Exchange in 2010, which managed a private offset market. Over 8,700 farmers were involved in the Exchange and committed to certain agricultural practices with the expectation that they would be compensated adequately, only to see prices drop well below \$1 for the credits they generated.¹ The market collapsed. In 2013, California established the country's biggest compliance Carbon Market including carbon offsets. Though the market has grown, it still includes relatively few agriculture offset credits, with offset developers preferring to pursue simpler forestry-based offsets. Much of the renewed interest in private carbon markets in the U.S. comes from companies like Microsoft, McDonald's and other major corporations who are looking for cheap strategies to offset their pollution and allegedly meet their net zero targets.²

For farmers, the carbon credit playing field is a complicated maze, difficult to assess and navigate. Characterized as a carbon credit “wild west,” a slew of private carbon markets and offset credit protocols have emerged in the U.S. – all with different rules, obligations, costs and prices. Carbon market developers like Indigo³ and Nori,⁴ which sell offset credits to corporate polluters, set their own requirements on the size of farm, soil testing data, third party verification, length of contract and practices. Agribusinesses like Bayer, Cargill and Land-O-Lakes have created their own carbon credit schemes with farmers they buy and sell to.

A 2021 Congressional Research Service (CRS) report on agriculture carbon credits within private markets identified five areas that threaten to undermine their credibility: realness (accurate measurement), additionality (action that would be additional to what was already planned), leakage, permanence and verification.⁵ All of these issues weaken voluntary carbon offsets, raising questions about whether emissions are actually cancelled out, let alone reduced, reports CRS.

An assessment by CarbonPlan of 14 soil carbon credit protocols in the U.S. found that not a single one had a meaningful screen for additionality. The requirement for additionality seeks to ensure that the credits would contribute to additional sequestration as a result of the project, as opposed to what would have been sequestered had the project not been carried out. CarbonPlan's review concluded that “the lack of



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rigorous standards makes it hard to ensure good climate outcomes.”⁶

An emerging body of research is identifying the complexities and uncertainty in measuring soil carbon in the short term and over the long-term. This is further weakening attempts to establish credible, high integrity agriculture-based carbon offsets, and causing experts to question whether significant additional soil carbon sequestration is possible.⁷ Recent research raises questions about whether carbon can be stored in the upper levels of soil for any significant length of time.⁸ An analysis of soil carbon testing found that typical testing practices overestimate the level of sequestration by sampling too close to the surface.⁹ A study in *Nature* found that rising temperatures predicted by climate change will release carbon from the soil much faster than previously predicted, thereby unraveling sequestration that has occurred.¹⁰

The latest IPCC report summary of science issued last year validated these concerns by making clear that there is not a one-to-one relationship between industrial sources of emissions and land-based carbon sequestration, and that climate change itself through temperature rise and extreme weather events will slow or disrupt our ability to sequester carbon over time.¹¹

FARMERS' PERSPECTIVE

From a farmer's perspective in the U.S. there are fundamental concerns that have driven the extremely low participation rate in carbon offset credit schemes, many of them involving farm economics and risk. Here are a few:

1. **CARBON CREDITS DO NOT COVER FARMERS' COSTS** — To gain carbon credits, farmers need to employ new farming practices to sequester carbon, referred to as “additionality” in carbon credit terminology (see above). This includes upfront costs to implement practices such as reduced or no tillage, the planting of perennial crops, and other agroecological practices. But farmers too often are dealing with year-to-year financial challenges as market prices rise and fall, so investing in new practices requires them to take on risk. An Arkansas rice farmer explained to the House Agriculture Committee that he only made \$133 on 200 acres put into a carbon credit project, which is not nearly enough to justify the

project¹² Bayer is paying \$3 per acre for reduced tillage — strip-till or no-till; \$6 per acre for cover crops; and \$9 per acre for adopting both practices.¹³ Corteva is currently paying around \$15 per carbon credit. The pricing for companies purchasing offsets directly from farmers, such as Cargill or Bayer/Monsanto, are less publicly available. Currently, it is impossible for farmers to tell exactly what the market price is - as opposed to other farm commodities — and whether that market will even cover their costs.

2. **THE IMPLEMENTATION COSTS ARE CONSIDERABLE, FAVORING LARGE-SCALE FARMS** — Aside from implementing new practices to participate in carbon credits, farmers must also take on additional costs associated with producing, measuring and verifying the carbon credit, including third party verification. For example, Nori requires third party verification that could cost up to \$3,000 per project. An assessment of agriculture carbon credit markets in the U.S. concluded that planning, measuring, reporting, verifying, market brokering and insuring risk are all significant barriers to participation in carbon credit schemes.¹⁴
3. **PAST AGROECOLOGICAL PRACTICES ARE NOT RECOGNIZED** — A carbon offset credit can only credibly reward new (or additional) carbon that has been sequestered. Farmers who have been practicing strong soil health building systems, such as organic or sustainable systems, for years or decades do not get credit for carbon stored in the past. Soil science indicates there are limits to how much carbon can be stored within soil, so long-time soil carbon builders may actually be at a disadvantage when it comes to developing carbon credits. The issue of “additionality” has plagued the forestry offset credit market, including the California compliance carbon market. A study by the University of California found that 82% of forestry offset credits were not additional, and hence did nothing to reduce emissions.¹⁵
4. **PERMANENCE AND RESTRICTIONS ON FARMLAND MANAGEMENT** — To credibly offset carbon emissions from polluters soil carbon offsets must be permanent, due to carbon remaining in the atmosphere from between 300

and 1,000 years. In farming, a change in land management practices like tillage can release the carbon stored, thereby undermining the integrity of the offset and ultimately their carbon credit contract. The risk of severe weather events, whether drought or floods, also may affect sequestration. Long-term carbon credit contracts can restrict farmers' ability to respond to weather changes, or market-related financial risks to the farm. The U.S. has already seen extreme weather events destroy carbon offsets. An estimated 158,000 acres of forestry-based carbon credits were literally burned during 2021 wildfires that hit many western states, according to research by CarbonPlan.¹⁶

5. **FARMERS LOSE CONTROL OF THEIR DATA** — To qualify for carbon credits, farmers are required to share enormous amounts of data about what is happening on their farm, including annual information about planting, seeds, fertilizer, equipment and harvest. Many U.S. farmers are concerned about who controls that data and who is benefiting.¹⁷ Many of the major global agribusiness firms like Cargill¹⁸, Bayer¹⁹ and Corteva²⁰ have created their own on-farm data systems that would give the companies unprecedented access to what is happening on individual farms, as well as aggregate data on many farms - all of which would be privately-held and controlled. These are often the same companies farmers are dependent on for purchasing farm inputs, hence creating a conflict-of-interest situation.

LARGER CONCERNS ABOUT CARBON MARKETS & ENVIRONMENTAL JUSTICE

Despite some interest from companies in farm-based carbon offsets, there is no push to develop a government-run carbon market at the national level in the U.S. Even a very limited bill to have the USDA set common standards for private offset credits hasn't passed Congress, facing opposition from 220 environmental and farm organizations.²¹

The inability of flawed carbon markets in California and in the Northeast states to effectively reduce emissions, along with recent research on carbon markets' lack of performance,²² has led to growing skepticism of this policy approach. In February, a California state panel reported that the state would badly miss its

goal of reducing emissions by 40% below 1990 levels by 2030, largely because of the state's cap and trade system.²³ The panel found that polluters have banked millions of carbon credits, many of them forestry-based offsets, allowing them to evade pollution reduction requirements.

New climate disclosure rules proposed by the Securities and Exchange Commission (SEC) could further weaken the offset market, as companies will be required to disclose their emissions and any offsets they have purchased.²⁴ This increased climate scrutiny through audited financial documents may be a deterrent for companies who want to demonstrate real emissions reductions.

Some of the sharpest criticisms of carbon markets in the U.S. have come from the environmental justice community. Many sources of greenhouse gas pollution also emit other toxic air pollutants that affect human health. Many of those pollution sources are located in communities of color.²⁵ Critics such as the Climate Justice Alliance argue that offset credits let companies off the hook from reducing their own pollution and associated damage to public health.²⁶ California's carbon market has long been criticized by the environmental justice community for containing loopholes that would allow polluters to continue polluting.²⁷ This affects low income and communities of color more because pollution sources are disproportionately located near them. A study from the University of Southern California found that these communities were less likely to see polluters reduce GHG emissions and other pollutants in their communities than elsewhere in the state.²⁸

AUSTRALIA'S & CANADA'S CARBON FARMING INITIATIVES ALSO YIELDING POOR RESULTS

Deep flaws in agriculture and forestry carbon offsets in other countries have also emerged recently. Australia's carbon offset program has come under heavy criticism recently, with a plunge in carbon credit prices, and claims of badly broken offset methodologies.²⁹ In Australia, offset credits were granted for not clearing forests that were never going to be cleared in the first place; for growing trees that are already there; for growing forests in places that will never sustain permanent forests; and granting credits for operating electricity generators at large landfills that would

have operated anyway.³⁰ A whistleblower in charge of the program called it a “sham,” particularly criticizing a program in which landowners were rewarded for allegedly re-growing trees on deforested land. But in analyzing the outcomes of 59 such projects, it turned out that the total forest area had actually shrunk.³¹ An earlier investigation by the Australian Conservation Foundation had found that one in five forestry offset credits did not represent real emissions reductions, as they rewarded landowners for not cutting down trees they could not plausibly cut down.³²

Canada’s experience with agriculture offsets have also been troubled. The Alberta voluntary carbon market has been issuing carbon credits mostly for no-till practices, but the credits do not require additionality, they actually allow tillage on 10% of credited land each year, and payments are year to year rather than ensuring permanency in the storage of carbon – all elements that directly undermine the integrity of the offset credit.³³ Another analysis of the Alberta market found that very few farmers participate because of low prices and shifting rules on what practices qualify for credits.³⁴

WHAT WOULD WORK BETTER FOR FARMERS & THE CLIMATE?

The IPCC report issued in February warned of a significant rise in risks and costs to farmers and the food system due to climate-related disruptions and emphasized the urgent need for deep investments in climate adaptation.³⁵ Paying farmers for soil carbon offsets treats agricultural land narrowly as a carbon sink for polluters. Agroecological-based farming systems can bring multiple benefits including healthier soils, clean water, wildlife habitat, and farm resilience to drought and flooding.

Sustainable agriculture advocates in the U.S. are pushing for an expansion of government conservation programs that support agroecological farming systems. Currently, these programs are under-funded, with only 41% of farmers applying for the Conservation Stewardship Program and 31% of farmers applying for the Environmental Quality Incentives Program receiving payments.³⁶ Expanding and improving these conservation programs and making them accessible to farmers of all types and sizes would bring immediate climate benefits.

The EU has allocated a budget of €387 billion in funding for the Common Agriculture Policy (CAP) from 2021-2027. The vast majority of CAP funds support

large-scale farms, incentivizing polluting industrial practices. For instance, 80% of CAP direct payments go to 20% of CAP beneficiaries at the expense of small-scale producers.³⁷ Though the new CAP includes payments for eco-schemes, it doesn’t go far enough. The CAP has the potential to be transformative for biodiversity and the climate if these demands from European environmental organizations are heeded: 1) create CAP safeguards against harmful payments (that lead to peatland drainage, monocultures and expansion of factory farms); 2) set binding national targets for environmental improvements as conditions for CAP money; and 3) expand eco-schemes to support farmers’ transition to agroecology.³⁸ The CAP remains the most critical policy instrument to enable EU agriculture and rural communities to deliver on these goals.

Governments setting ambitious targets for reducing agriculture’s major sources of greenhouse gas emissions directly is also badly needed. In the U.S., farm and environmental groups have called on the Environmental Protection Agency to begin regulating methane emissions from the largest hog and dairy operations.³⁹ The European Environmental Bureau is calling for EU-wide and national level targets to reduce agricultural greenhouse gases.⁴⁰ Emissions from mass livestock production and the manufacture and use of synthetic fertilizers are major sources of agriculture-linked emissions in both the U.S. and the EU, and they currently go largely unregulated.

In 2023, Congress will write a new Farm Bill that should reflect the urgency of the climate crisis. The EU will also begin implementing the new CAP in 2023, with the opportunity to push for reform as early as 2024 as member states submit their annual CAP performance reviews and the Commission reviews the performance of CAP strategic plans in 2025. There are opportunities to invest more deeply in popular, effective conservation programs, incentivize agroecological practices, and address the over-production of energy intensive commodity crops. It is critical that policymakers avoid distractions like carbon offset markets.

As Wisconsin dairy farmer, and Chair of the National Family Farm Coalition, Jim Goodman says, “The last thing we should be doing is turning carbon into another commodity to be sold or traded in the global economy. Carbon markets will do nothing to reduce greenhouse gas emissions. All they will do is create another way for polluters to profit from their lack of environmental concern.”⁴¹

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