



## Looking for the Gold Standard in Carbon Verification

By Mark Fogarty

*Tribal Carbon Solutions* has been monitoring the Air Miners series on carbon Measuring, Reporting and Valuation (MRV). Starting from a general session on valuation, the group has continued the series by analyzing MRV in the different sectors of the carbon removal field.

This is the third session in the MRV series *Tribal Carbon Solutions* has covered, and the topic this time is soil carbon.



Credit: Dan Charles

Moderator Radhika Moolgavkar, head of supply and methodology at Nori, a carbon marketplace, noted she has been involved in MRV for the past two years.

She challenged the panelists to talk about why MRV is important, and why many people consider soil sampling a kind of gold standard.

Panelist Jenette Ashtekar, head of product at CIBO Technologies, agreed with Moolgavkar. “We need to be verifying, credibly, that the carbon somebody is paying for as an offset, removal, or reduction is actually there in the soil. Today, the way that is done at the most gold standard level is through soil sampling.”

She continued “The idea with soil carbon markets is that you do a new agricultural practice and it increases the accumulation of carbon in the soil. That carbon is stored inside the soil, potentially permanently, if it’s managed correctly.”

In order to monetize it, Ashtekar said, “we need to be able to demonstrate over a specific time period that there’s

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a starting soil carbon, there’s an ending soil carbon, and the difference between start and end is the offset.”

So, “we absolutely have to sample,” she said. A problem is that soil sampling “is expensive and restrictive. It takes years for soil carbon to materialize. So, if I start today I might not be able to see soil carbon accumulation I can detect with the type of analysis that is run on a sample for years. For up to five years.”





Yard Stick created a hand-held soil probe to measure carbon soil levels onsite. Yard Stick PBC

The trouble is, it's not possible to wait five years.

"As a result, we are using modeling to understand annual sequestration of carbon. So ultimately, we need to sample at the beginning of a monitoring period and at the end of a monitoring period to show with data that has been run through a lab, how much organic carbon has accumulated."

And, said Ashtekar, "between the start point and the end point of our sampling, we can use models. We can use mechanistic, biogeochemical models that enable us to model the annual accumulation of carbon."

That will allow sellers to issue credits on an annual basis, she maintained. Sampling at the end of a period can be used as a true-up, and adjustments in credits can be made in either direction (too much or too little).

Chris Tolles, CEO and Co-Founder, Yard Stick PBC, took a slightly different tack. He said that with his company's technology "we're trying to directly replace direct sampling itself."

He said his firm's technology "knows what the shape of soil carbon is in spectroscopy." Yard Stick does not want to have to remove the soil sample from the ground, "which is a pain in the ass."

Whereas "conventional sampling is really costly, we're trying to do the exact same thing, generate point data, on the farm, in the field but do so at a much lower cost."

Attendees heard the firm of the third panelist, Boomitra, is using AI and satellite technology.

Aadith Moorthy, CEO and founder, said "we use satellites along with AI to convert what those satellites see into actionable numbers on the ground."

The high resolution of the satellite imagery "enables us to see variations that occur on that level and enables us, on a project level, to achieve very good results. We're also able to see the trend of soil carbon with time."



Chris Tolles, CEO & Co-Founder, Yard Stick PBC

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Aadith Moorthy, CEO and founder of Boomitra

