



Grassroots Carbon

Provider: Grassroots Carbon

Location: Texas, Nebraska, South Dakota, and Kansas

Mechanism: Soil Carbon Sequestration

Website: <https://buildgrassroots.com/>

Date evaluated: Sept-Oct 2021

About

Grassroots Carbon formed out of a merger in April 2021 between PastureMap and Soil Value Exchange.

PastureMap is a software-based company whose goal is to empower ranchers and farmers to adopt regenerative agriculture. They already have a large base of ranchers on their platform, and they collect a lot of data from them. Soil Value Exchange has done work on the demand side to sell credits to large corporate buyers, such as Shopify. Their joint goal in bridging their demand-side and supply-side backgrounds is to figure out how to deliver the most rancher-friendly credit.

Because of their previous engagement with over 20,000 landowners through PastureMap, Grassroots has extensive supply. They have 4.5M acres opted into becoming potential projects right now. They divided their efforts into cohorts of ranchers relatively near each other. These cohorts of landowners are generally a healthy mix of those who are new to regenerative practices and those who have been doing it for some time.

Do you consider this project to be avoided emissions or emissions removed? Why?



What can you tell us about the carbon life cycle of the average tCO2e that your solution removes or reduces?

Carbon removed – the BCarbon Standard that we leverage is based around carbon storage/removal not offsets.

Carbon is taken up by plants via photosynthesis. While some of this carbon is stored in plant biomass, nearly all gets moved into the soil via the plants' roots. Regenerative practices encourage the placement and continued storage of carbon within the soil. For added permanence the BCarbon standard has a 10 year permanence agreement built into their carbon storage standard.

Do you offer a direct-to-consumer purchasing option for your offsets?

Yes, anyone can buy directly from our site here: <https://buildgrassroots.com/carbon-buyers/>

Are there additional benefits that your company offers?

Grassroots Carbon is keen to connect buyers of credits with the actual ranchers and farmers who are generating the credits. They have facilitated introductions, and some companies have organized meet-and-greets on the ranches. Ranchers on their platform have expressed interest and willingness to share their stories, either in-person or in written formats (e.g. blogs).

How much supply do you have still available for purchase in 2021?

Grassroots Carbon still has supply available for purchase in 2021 but all of our delivery dates are scheduled for later into 2022 due to increased demand from carbon buyers.

When does carbon reduction or removal occur? How is it distributed over time?

Grassroots Carbon follows the [BCarbon](#) standard to certify their projects. BCarbon credits are only issued for removals, not reductions. According to this protocol, [here is how the carbon removal and credit issuance is distributed over time:](#)

BCarbon Credits are issued on a forward looking model, this means based on the practices adopted and the characteristics of the land, a conservative estimate is calculated for the expected annual carbon removal. At the beginning of each year, credits equivalent to this estimate are issued. This forecast must be approved by the certifying body (BCarbon).



In the 5th year, a second round of soil carbon measurement occurs to determine the actual amount of carbon removed from the atmosphere. This actual amount is then reconciled with the amount of credits already issued. Because of the conservative nature of the annual estimates, it is expected that more credits will be issued in the final year to align with actual carbon removed.

Landowners also enter into a 10-year “lockdown” agreement to ensure the permanence of the carbon removals for at least the duration of the agreement. In total, this agreement is 15 years in length (5-years of measurement / credit issuance, 10 years of lockdown).

Integrity

First, projects must cross the hurdle of actually reducing or removing the carbon they claim to. To evaluate a provider's integrity, Joro considers verifiability, enforceability, additionality, permanence, and transparency.

Verifiability

How will you measure, report, and verify the emissions you are reducing or removing?

What third party verifiers or other evaluators have evaluated this offset project? What verification standard or evaluation process did they use?

If none, what plans do you have in place to get verified or evaluated?

Grassroots Carbon uses the BCarbon standard, [which is regarded \(along with Verra\) to be the most scientifically rigorous standard for soil carbon sequestration](#). Per this standard, only the delta of carbon stored over a 5 year period is able to be issued as credits.

All measurements are taken and audited by third-party entities.

Enforceability

Do you provide proof of retirement upon purchase of an offset?



Yes. BCarbon maintains a registry of credits purchased, through which it tracks credit issuances, sales, and retirements. Once a buyer claims an emissions reduction, BC Carbon is notified and the registry manager retires the credit, such that it is no longer transactable.

Additionality

Did the project require financial capital from offsets to make the project a reality? How will the project result in carbon reduction or removal that would not have otherwise happened without our purchase?

Yes and no. Yes – Grassroots Carbon represents a two-sided marketplace. Cohorts of regenerative ranchers are formed at the same time that buyers of credits are sourced. Because of this, the realization and financing of these projects is tied to the existence of carbon buyers.

No – The regenerative ranches that make up each cohort are all different. Some landowners are new to regenerative practices. Thus, their projects represent carbon removals that would not otherwise have happened without Grassroots Carbon's support, especially given the upfront capital costs of changing practices.

However, some landowners have been doing regenerative agriculture for years, if not decades. Including these landowners in these cohorts doesn't necessarily represent a conversion (and are associated with net less carbon removal), but it does help prove that landowners can get paid for the carbon benefits they are producing. Keep in mind each of these landowners only get paid on the net increase in carbon storage so folks who have been doing this for a long time still need to do new or optimized practices they were not doing before in order to ensure more carbon is being stored as BC Carbon does not currently credit historical storage.

Permanence

What is the duration in years over which the carbon storage or reduction represented by this project's offsets can be reasonably assured? What supporting research would you point to?

The minimum contractual obligation is 10 years after the conclusion of the 5-year measurement period. The landowner is allowed to continue selling through Grassroots Carbon, but each additional year resets the 10 year permanence clause.

Transparency



BCarbon requires extensive project documentation and third party verification in order to approve the issuance of carbon credits. Supporting documentation must be kept at each stage of the below-ground carbon accrual process - including project methodologies, definition of project area, stratification of project area, sampling plan description, field sampling records, laboratory analytical results, modeling, estimation, and monitoring records, project results, and any supporting appendices. BCarbon uploads project documentation and quantities of issued credits to the registry.

Transformative Potential

Creating a just and sustainable future will require fundamentally transforming our society. We prioritize carbon removal projects that contribute to a world for all life to thrive, considering efficiency, scalability, catalytic potential, ecosystem benefits, and community benefits.

Efficiency

What is the cost per carbon credit (tCO₂e) for this project?

As of 2021 the cost per carbon credit is \$30/t, for larger volumes discounts are available depending on the amount of storage purchased.

Note: this has been variable because the carbon market has been volatile, and Grassroots negotiates contracts separately on behalf of ranchers to ensure the best price for their credits. Joro's specific contract is priced at \$23.50 per ton.

Tell us more about your fee structure. Specifically, what percentage of an offset purchase goes towards your company, the project owner, and any other parties involved in the offset project?

We like to keep things simple, 80% of carbon profits go to ranchers / landowners. If our costs go down, ranchers make more money. Grassroots Carbon assists landowners with upfront capital costs associated with verifying the carbon storage process.

Scalability



Does this offset project represent a solution from Project Drawdown? If so, which one(s)? Can this solution theoretically be scaled up to reduce or remove at least 1 gigaton of carbon dioxide by 2050?

Yes, [Regenerative Annual Cropping](#). According to Project Drawdown, regenerative annual cropping can sequester 14.52-22.27 gigatons of CO₂e between 2020 and 2050: "Total land available for regenerative annual cropping is 685 million hectares, consisting of annual nondegraded cropland of minimal slopes. Current adoption is estimated at 11.84 million hectares."

Because Grassroots leverages ranch lands there is massive scalability from within the current PastureMap user base and the expansion to other ranch owners. See slide for example:

A CO₂ storage solution at a scale that matters

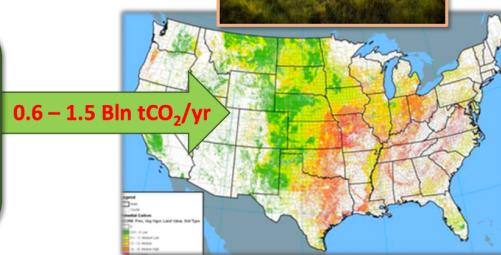
6.6 Bln metric tons CO₂ (eq)/year
Total US GHG emissions (2015)



10 – 23 %
of all US Greenhouse
Gas emissions
can be stored annually
if we restore half of
our grasslands



655 MM acres grasslands
(incl. pastures and range lands)



No land Change required.
41% of U.S. land
revolves around livestock.





Catalytic Potential

Does this project use a novel approach or a well-tested solution? Does this project help demonstrate replicability and inspire similar future projects? How does your project lead to greater innovation in the broader carbon removal field?

Grassroots Carbon is one of the first adopters of the BCarbon standard.

Their two-sided marketplace works to provide a proof point that ranchers, farmers, and landowners can get paid for the carbon benefits generated through the use of regenerative agriculture practices.

The great part about their program is as their ranchers start getting paid for their carbon storage it creates a flywheel effect for future projects. Their ranchers share what they are doing with their local ranching communities which inspires those folks to participate with Grassroots, which perpetuates the cycle.

The innovation in our program is captured in their Public-Benefit purposes: (shown below)



Grassroots Carbon is a Public Benefit LLC



This means that we are a **for-profit company, but with formal non-profit Public-Benefit purposes:**

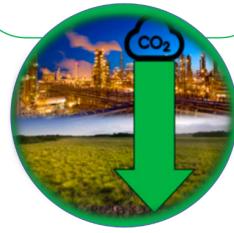
(a) to advance the use of farm and grazing land management methods that will improve ecological health, soil health, soil carbon storage, soil water retention, erosion prevention and other benefits



(b) to develop and implement eco-services market that will allow landowners to economically benefit from the eco-services they provide, such as soil carbon storage



(c) to communicate and stimulate the use of nature-based climate solutions



(d) to stimulate and support research related to assessing or enhancing soil eco-services.



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The Carbon Grazing Network

Ecosystem Benefits

Does this offset project address any Sustainable Development Goals beyond Climate Action? If so, which three is your solution most closely aligned with? Are these co-benefits tracked and/or measured? If so, how?

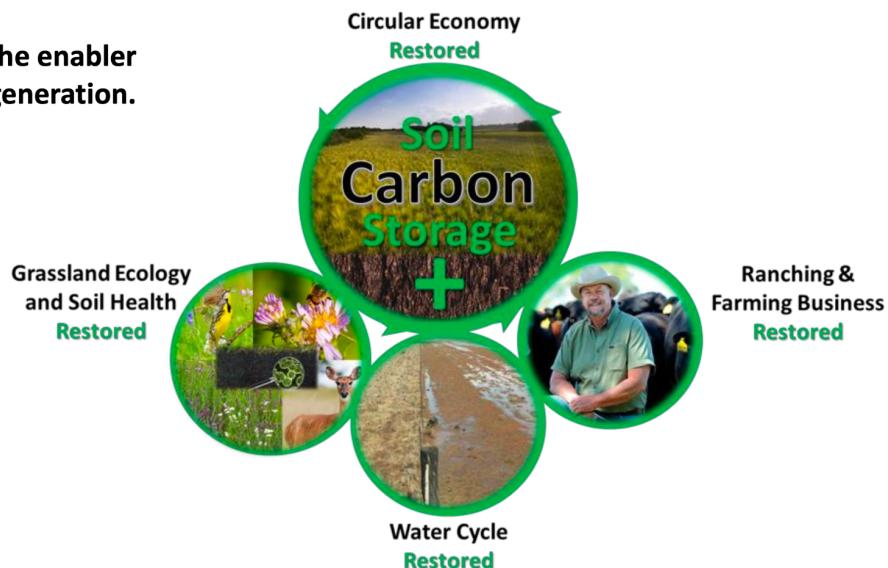
Regenerative agriculture co-benefits are extensive, from water quality to stormwater management to ecosystem benefits. These “Carbon+” benefits, as Grassroots refers to them, are actually even more well-studied than the carbon removal benefits.



Regenerative land management enables Soil Carbon Storage +



**Carbon is the enabler
to fund regeneration.**



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The Carbon Grazing Network

Community Engagement

Who are your community stakeholders? How are local communities involved or consulted in this project?

The key community engaged in these projects are the landowners themselves. The stated goal of Grassroots Carbon is to provide the most rancher-friendly carbon credit opportunity as possible. This involves:

- Supporting ranchers' switch to regenerative practices – for example, by partnering with groups, to help them access capital for their shift to regenerative practices
- 80% of carbon credit profits going to ranchers



What potential risks do these communities face directly or indirectly related to your work? What steps have you taken to address these risks?

A risk to ranchers is that their change to regenerative practices doesn't actually result in the expected soil carbon removal. In this case, they run the risk of not being able to actually issue credits. To alleviate this challenge, Grassroots Carbon takes on this risk of paying for measurement and verification costs. Additionally ranchers can leverage tools like PastureMap to track and manage their grazing decisions, better grazing planning means a higher likelihood of storing more carbon.

What non-carbon benefits from this project accrue to local communities? What are the land use implications on local communities as a result of your projects?

BCarbon has specific language in their certification documentations to help support indigenous and underrepresented groups. Grassroots Carbon is currently working on towards creating either a cohort comprised of indigenous and underrepresented groups or other ways to help support BCarbon's efforts to provide more direct support to these groups.

Additionally there are massive benefits to ranch land ecosystems that move towards regenerative and AMP grazing practices. These are what Grassroots Carbon refers to its "Carbon Plus" benefits described above.

Risks: What are the primary risks to the success of this offset project?

The main risk with these projects is that a landowner decides to be a bad actor. This is a problem that cannot be fully solved, though Grassroots Carbon mitigates it by:

- 1. BCarbon requires a mandatory 10% buffer on all storage sold so if anyone does not meet the estimated carbon storage they can pull from their buffer.
- 2. Grassroots Carbon engages with a myriad of land owners, this means if some of our landowners don't meet their forecasted carbon storage amounts we still have plenty of buffer inventory to deliver purchases.

Another risk is that the science of soil carbon measurement is relatively new and still being developed.



- For example, Microsoft recently wrote about their experience using another supplier, their protocol relied on forecasting instead of direct measurement, and it was revealed that the project, despite forecast, actually did not perform.
- This is why Grassroots Carbon has adopted use of the bCarbon standard, which they view as the most scientifically rigorous and is solely reliant on direct measurement.