Hu Analysis of MyLand Rebuilding Sustainable Soil

Chris Draper

15 April 2024

MyLand is a Series B startup whose “Soil as a Service” technology boosts land value by directly addressing the specific deficiencies in degraded, irrigated soil. This analysis estimates the Size of Problem (SOP) being addressed by MyLand is equal to 32.48M acres of distressed to severely distressed soil supporting 51M United States citizens. This SOP is equivalent to 1.14 acres per Hu, resulting in an intangible value of between $10,518,053 and $234,222,920 for every 100,000 acres served.

Background

MyLand addresses soil degradation due to traditional farming by offering "Soil as a Service," which leverages live, native microalgae to rapidly enhance soil health. This approach not only restores soil but also improves crop yields, nutrition, and economic returns, supporting food security and mitigating climate change. MyLand services include increasing microbial activity and improving soil organic matter, enabling farmers to adopt regenerative agriculture more easily, thereby boosting land value and potential revenue from carbon capture and water savings.

Soil health is a significant issue in the United States, exacerbated by intensive agricultural practices that have led to widespread soil degradation. Healthy soil is critical because it underpins the entire agricultural ecosystem by supporting crop growth, maintaining natural biodiversity, and regulating the Earth's climate through carbon sequestration. Degraded soil reduces its fertility, limits agricultural productivity, and diminishes its ability to store carbon, thereby contributing to climate change.

Traditional irrigation practices can have significant implications for soil health and farm sustainability in the United States. Over-reliance on irrigation can lead to issues like waterlogging, salinization, and the depletion of water resources, particularly in areas where water is already scarce due to drought. This can degrade soil quality, reducing its productivity and resilience against environmental stresses. Additionally, as the drought line moves eastward, regions that were not previously prone to drought conditions may face new challenges in maintaining soil health and agricultural sustainability. These changes necessitate adaptive management strategies to ensure long-term soil and farm viability – strategies MyLand provides through its “soil as a service” offering.

The MyLand approach to soil sustainability seeks to optimize microbial activity and soil organic matter so as to better retain water, sequester carbon, and efficiently use nutrients. Increasing these capabilities reduce the number and magnitude of negative risks to water quality, water security, food security,

greenhouse gas emissions, and soil salinity. Addressing these issues have far ranging benefits, from reducing hunger to preventing a land viability crisis that some studies fare may prevent many from farming in as little as three generations. Yet this analysis will focus on the benefit of helping soil reach its optimum, sustainable productivity.

Size of Problem

This analysis assumes MyLand is solving the problem of non-optimal soil within irrigated land. When measured in acres, if one were to assume that all of the non-optimal characteristics observed in irrigated land in the United States could be addressed with the MyLand soil as a service solution, then the estimated Size of Problem (SOP) would be the 58M acres of irrigated land out of the 316M acres of farmland.[1] The number of citizens dependent upon this irrigated farmland can be found from USDA data indicating an average of 166 people are fed from each of the 1.9M farms in the United States, resulting in an estimate that irrigated farms are responsible for feeding an average of 51M citizen per year. No further qualification or modification would indicate that MyLand is providing a benefit through soil optimization that is found by its number of serviced acres divided by the Hu rate of 1.14 acres per Hu.

Yet not all land is equally likely for MyLand to make its most significant impacts. For example, from various proven trials MyLand testimonials indicates that gains upwards of 30% in productivity can produced when starting with moderate to severely degraded land, of which the Sustainable Agriculture Research and Education (SARE) program and the U.S. Department of Agriculture indicate 33% of all land recently fell into this category.[2] For this one-third of farmland, an argument can be made that MyLand is capable of communicating and delivering reasonable optimization that will clearly benefit 100% of farmers on these lands. Counter to this, it is likely that the opposite is true for one-third of those farming on slightly degraded lands, preventing them from seeing the benefits of MyLand technology. In the middle two-thirds of the two-thirds of all lands that are not moderate to severely degraded, in the absence of more complete data, this analysis assumes there is one-third that has a 50% probability of understanding the value provided by MyLand. Using these assumptions, the number of acres that the community would view as suitable for the MyLand technology must be modified by the weighted average of these assumptions. Assuming these assumptions can be applied proportionally to the irrigated lands serviced by MyLand, the amount of farmland that can be brought to optimal health with MyLand technology is nearer 56% of this total. The fact that the SOP that can be addressed by MyLand is nearer 56% of the irrigated land means the number of acres require to achieve an Hu must be proportionally reduced by this factor, resulting in the SOP numerator to being 32.48M acres (i.e. 0.56 * 58M) per 51M citizens affected, or 0.637 acres per Hu.

Hu Estimation

[1] https://farmdocdaily.illinois.edu/2021/06/estimating-total-crop-acres-in-the-us.html#:~:text=Principal%20crop%20acreage%20of%20316.2,2020%20was%2020.8%20million%20acres

[2] https://www.sare.org/wp-content/uploads/Building-Soils-for-Better-Crops.pdf

MyLand has completed both a Series B and already supported many paying clients. Prior valuations had limited access to the true intangible value of the organization, and no access to monetize that intangible value given the uncertainty in the voluntary carbon market (VCM) and lack of significant options for the other intangible values impacted by MyLand's work. Given recent growth in test sites and uncertainty in their reach over the coming years, the following Hu valuation is based upon a range of hypothetical numbers of acres served in a given year. Using the number of acres per Hu estimate equal to 0.637 as presented above, the following table provides the predicted Hu generated by MyLand per year as a function of acres servicing:

Number of Acres	Hu per year	Hu Value Low [1]	Hu Value High [2]
10,000	15,699	$1,051,805	$23,422,292
14,000	21,978	$1,472,527	$32,791,209
30,000	47,096	$3,155,416	$70,266,876
100,000	156,986	$10,518,053	$234,222,920
300,000	470,958	$31,554,160	$702,668,760
1,000,000	1,569,859	$105,180,534	$2,342,229,199

[1] Low value is based on the EGDM auction data from 2023, resulting in a Hu valuation of $67 per Hu

[2] High value is based on a 2024 Q1 EU ETS carbon pricing estimate of $1492 per Hu

Estimation Valuation and Uncertainties

The above indicates MyLand is producing significantly higher value than if it were modelled using traditional means. At the same time, this analysis does not even account for benefits like reduced risk of livelihood loss afforded through reduced dependency on traditional farm inputs and increases in revenue. However, since these are potential benefits, it is worth comparing the above value against these costs where possible.

For example, optimized soil should reduce the need for traditional inputs. When looking at the direct inputs cost for corn and soybeans in 2024, these are expected to range from $259 to $505 per acre.[3] When looking at the line above that is associated with servicing 30,000 acres, these direct input costs alone would range from $7.7M to $15.1M, which is more than double the lower boundary estimate.

Opportunities for Refinement

[3] https://www.farmersadvance.com/story/news/2023/11/16/2024-crop-budgets-are-now-available-for-corn-and-soybean-budgets/71608226007/

This analysis focuses solely on the value of bringing soil back to its optimally producing state so it can maximize yield with the minimum quantity of traditional inputs. This analysis does not begin to evaluate the value of increasing soil longevity and yield, or reducing risks to farm insolvency or regional economic depression if soil quality continues to degrade. These factors should likely be included as part of a more in-depth analysis of the full intangible value of MyLand, with those components potentially being significant contributors to the overall organizational value.