

ARTICLE

The Great Potential of Enhanced Rock Weathering in Brazil

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We would like to elaborate on the great potential of Enhanced Rock Weathering in Brazil. This is because Brazil already has a long history and

established market for rock powders and their application for agriculture in the form of remineralizers.

A History of the Use of Rock Powder in Agriculture in Brazil

First and foremost, we have to clarify that the idea of applying finely ground rock on agricultural land is nothing new, and Brazil has had a strong line of research in this area for many decades. In fact, the initial ideas date back to the 19th century (see M. Missoux and [Julius Hensel](#)) and were picked up from the Brazilian researchers Djalma Guimarães, Wladimir Ilchenko, and Othon Henry Leonardos as early as the 1950s. They can be considered the grandparents and fathers of the “Rochagem” movement in the country, respectively. Through their research and orientation, they created a whole generation of scientists (and farmers!) who started to pick up the ideas and carried them to the major schools and institutions of Brazil. As outstanding examples and successors, one may name Suzi Theodoro Huff (University of Brasilia) and Eder Martins (EMBRAPA), two researchers who can be considered world-leading in this domain. We are happy to be able to count on both of them as advisors to our endeavors. We attached some read-worthy works at the end of the article in case you like to take a deep dive. It is crucial to clarify this because, reading through the pitches of some Northern Hemisphere projects, one easily gets the impression that the spreading of rock dust is something recently innovated.



[Fig. 09B] Dr. Djalma Guimarães ao microscópio petrográfico na década de 20, no Serviço Geológico e Mineralógico do Brasil.



From left to right: Guimarães, Leonardos, Theodoro

The current market for rock powders in Brazil

Secondly, large amounts of rock dust are already being supplied to the market and spread on fields in Brazil. Eder Martins from Embrapa says that rock dust was applied on ca. 3 million hectares in Brazil in 2021. Members of [groups like the GAAS](#) have already applied rock dust for more than 10 years in their fields, and some farmers have reached a situation where they have fully replaced conventional fertilizers with rock dust. As of today, 30 Mines throughout 09 states do produce certified rock dust (here called remineralizers since the edition of Law nº 12.890/2013).

Certified remineralizers

Thirdly, legislation and policy! Since 2013, Brazil has had unique legislation that defines which kinds of rock dust actually bring value in the context of agriculture. The law of the remineralizers from 2013 in combination with a technical norm defined by the Ministry of Agriculture in 2016 ([see details](#)) describes exactly which parameters rock dust must fulfill in terms of elemental composition and granulometry to be certified. The mentioned 30 mines have already passed this certification process, and the latest national

plan for fertilizers includes the strategic goal to certify up to 1000 mines by 2050, potentially supplying all farmers nationally with remineralizers. In 2022, a national production of 3 million tons of rock dust is expected. This situation created additional market opportunities for actors who specialized in the analysis and certification of remineralizers. Here, the start-up Reminera developed a fully integrated service from analytics and certification to go-to-market consultancy. Moreover, a recently founded association, the [ABREFEN](#), incentivizes mines to produce remineralizers, supports quality management and monitoring, and enables legislative processes to accelerate the transition from conventional to sustainable agricultural inputs. Overall, a unique institutional setup is developing in the country, fortifying Brazil's leadership in the area of rock powders or remineralizers.

These factors show that Brazil, in fact, is already a leader in enhanced weathering, as you are reading this article. Thereby, the country's focus is not necessarily on the carbon removal aspect but rather on the potential of food security and national sovereignty, which became especially incentivized through the recent war in Ukraine. The topic found its way into mainstream media and was, inter alia, [picked up recently by the very popular broadcast channel "Globo Rural"](#).

If you are interested and would like to start your Enhanced Rock Weathering project in Brazil, get in touch! We are involved in pioneering research and can operate on different scales, adjusted to your individual need for carbon sequestration.

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