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BRAZIL'S FIRST GREEN AGROMINERAL HUB: POSITIONING AND PROSPECTS¹

PRIMEIRO POLO AGROMINERAL VERDE DO BRASIL: POSICIONAMENTO E EXPECTATIVAS

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ABSTRACT

The use of fertilizers is one of the items that most burden agricultural production costs in Brazil, most of which are imported, and it is interesting to seek internal public policies to encourage the production of fertilizers. The city of Uberlândia was chosen for the present study, due to being the pioneer to publicly support and provide a technical and structural apparatus for research with basalt powder, which is a natural product, with fertilizer potential for agriculture. The theme was chosen mainly because it is an initiative that encourages sustainable practices in the field. Therefore, the objective of this work is to analyze the creation of the first Green Agromineral Hub in the country, which is a policy to support the production of remineralizers. Therefore, based on reports obtained on virtual websites, a qualitative research was carried out, using secondary data, which details the city hall's marketing positioning to promote the basalt remineralizer. To this end, the statements of the technical team, responsible for encouraging agribusiness in Uberlândia, were analyzed, with subsequent content analysis. Therefore, the conventions that differentiate in the market follow are based on criteria of price, regionality and sustainability.

Keywords: agriculture, sustainability, fertilizers, remineralizer, basalt powder.

RESUMO

O uso de fertilizantes é um dos itens que mais onera os custos de produção agrícola no Brasil, os quais, em sua maioria, são importados, sendo interessante buscar políticas públicas internas de incentivo à produção de adubos. A cidade de Uberlândia foi escolhida para o presente estudo, em função de ser a pioneira

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a apoiar publicamente e fornecer um aparato técnico e estrutural para pesquisas com pó de basalto, que é um produto natural, com potencial fertilizante para a agricultura. A escolha do tema deu-se, principalmente, por ser uma iniciativa que incentiva práticas sustentáveis no campo. Assim, o objetivo desse trabalho é analisar a constituição do primeiro Polo Agromineral Verde do país, que é uma política de apoio à produção de remineralizadores, também busca-se verificar o posicionamento da organização e suas expectativas. Destarte, baseando-se em reportagens obtidas em sítios virtuais, foi realizada uma pesquisa qualitativa, utilizando dados secundários, que detalham o posicionamento de marketing da prefeitura para promover o remineralizador basáltico. Para tanto foram analisados os depoimentos da equipe técnica, responsável por incentivar o agronegócio em Uberlândia, com posterior análise de conteúdo. Logo, identificou-se que a diferenciação no mercado ocorre pautando-se em critérios de preço, regionalidade e sustentabilidade.

Palavras-chave: agricultura, sustentabilidade, fertilizantes, remineralizador, pó de basalto.

INTRODUCTION

The use of fertilizers is essential for the intensification of agriculture and the recovery of degraded areas, contributing to increased food production, improved quality of agricultural products, and economic and environmental sustainability when properly applied (Stralio et al., 2022). However, fertilizers are among the items that most increase production costs in Brazil, accounting for up to 30% of the total production costs of a crop season (Santos; Campos, 2019).

To make matters worse, most fertilizers used in Brazil are imported, meaning that changes in the international economy affect the primary sector of the largest country in Latin America, creating risks of crop losses. This makes it essential to seek domestic alternatives to encourage fertilizer production, such as public policies promoting soil remineralizers, thereby avoiding these problems (Fernandes, 2022).

Soil remineralizers, popularly known as rock dust, basalt dust, or even agromineral fertilizer, occur naturally and abundantly in the minerals found in Brazilian soils. They serve as substitutes for conventional chemical fertilizers or



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as supplements to industrial fertilizer formulations used in agriculture, whose main function is to replenish the soil with nutrients lost during the production process (Brito et al., 2019).

Accordingly, research on silicate rocks as a nutrient source has been encouraged in Brazil, aiming not only to increase the efficiency of agricultural soil fertility management through the use of these inputs but also, to some extent, to reduce dependence on imported raw materials for fertilizer production and to promote a more sustainable form of agriculture. Rock powders possess satisfactory quality, are available locally, and have lower costs than similar products, although they still require more consistent exploration (Souza, 2020).

The city of Uberlândia was selected because it was the first to publicly support and provide the technical, bureaucratic, and structural framework necessary for the development of studies on basalt dust, an agricultural remineralizer with fertilizing potential. As a municipality located in the central region of the country, rich in basalt deposits, equipped with agro-industries, and served by an extensive highway, railway, and airport network connecting Brazil's main economic regions, in addition to benefiting from the scientific support of the Federal University of Uberlândia (UFU) and the Federal Institute of the Triângulo Mineiro (IFTM), it represents fertile ground for the development of research related to soil remineralizers, as well as for their production and commercialization (Municipality of Uberlândia, 2021).

Thus, the objective of this study is to analyze the establishment of the first Green Agromineral Hub in the country in Uberlândia, Minas Gerais, seeking to describe its insertion into the agribusiness market, its positioning, and to identify business prospects.

To achieve the general objective, the specific objectives are: to present the actions being undertaken to transform the city of Uberlândia into a national reference in Basalt Rock Dust; to describe the marketing strategy used by the



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municipal government of Uberlândia, Minas Gerais, to promote basalt remineralizer, aiming to make it an innovative and successful product for Brazilian agriculture; and to analyze the expectations of the stakeholders involved in the development process of the Green Agromineral Hub.

By collecting these data, it is possible to define the set of values underlying the soil remineralizer incentive program and the expectations for this market.

It should be emphasized that the choice of this research topic was motivated by the fact that it is a new subject, but mainly because it is an initiative that encourages sustainable practices in agriculture, showing promise both in terms of agronomic and administrative knowledge production and technological development. Furthermore, its findings may serve as a starting point for improving the management strategies of the Municipality of Uberlândia, as it examines its marketing positioning regarding the actions carried out by the technical team responsible for promoting the Green Agromineral Hub, aiming to create competitive advantages for soil remineralizers and for the organization that promotes them.

The initiative is supported by the Municipality of Uberlândia and other agricultural and banking institutions in the country, representing a promising endeavor in terms of economic development, sustainability, and technological production for the Triângulo Mineiro region (Municipality of Uberlândia, 2021).

MARKETING POSITIONING

Kotler (2021, p. 305) defines positioning as "the act of designing the company's offering and image to occupy a distinctive place in the mind of the target market," that is, the way the company wishes to be perceived by its target audience. In light of this, marketing positioning can be defined as a set of strategic actions aimed at strengthening a brand and its products. When properly



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executed, it can assist customers in their decision-making process, generating competitive advantage and market acceptance, even among those who have had no previous experience with the product (Lages & Azevedo, 2008).

Hemzo and Toledo (1991) argue that positioning encourages consumers to form perceptions about a company and, within a competitive market, enables them to recognize the differences among competing brands, leading them to choose those perceived as having greater value. Value, in turn, refers to the product's advantages, the impacts it has on consumers and on the distribution chain. In short, it consists of the benefits perceived by customers and serves as a benchmark for product differentiation within its market segment (Passerini, 2011).

The fact is that the construction and occurrence of social phenomena stem from discourse, which gives meaning to things through systems of linguistic signs. It is therefore believed that advertising can influence consumption practices through communication that creates attractive images for the public (Lages & Azevedo, 2008).

Within the context of consumption, meaning is culturally constructed and transmitted. It is associated with a conceptual and emotional repertoire and does not concern only physical characteristics, utility, durability, or price. Therefore, it is essential to align a product's attributes with the aspects valued by consumers, continually seeking greater identification with the buyer, which is precisely the essence of marketing positioning (Passerini, 2011).

UBERLÂNDIA AS THE GREEN AGROMINERAL HUB

Uberlândia plays a significant role in the agribusiness sector (Guimarães & Baccarin, 2019). The city's territorial configuration is characterized by the strong presence of market operators engaged in the production and commercialization of commodities, placing the municipality in a prominent



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position, especially regarding soybean, meat, and leather exports, while remaining highly dependent on agricultural inputs (Oliveira & Selingardi-Sampaio, 2020).

Furthermore, the city is located at the intersection of several Brazilian states, encompassing a wide diversity of agro-industries, and is situated within a region where major economic centers converge, accounting for just over 50% of Brazil's Gross Domestic Product (GDP), making the region attractive in terms of financial investment and population growth (Bueno & Arantes, 2014).

In addition to its strategically favorable logistical position, Uberlândia also benefits from being located within a morphoclimatic domain that provides ideal conditions for agriculture and livestock production—the Cerrado—which features a tropical climate, two well-defined seasons, and a significant number of river basins for irrigation and water supply (Magalhães, 2011).

Moreover, according to Oliveira and Rodrigues (2009), Uberlândia is situated on volcanic rock formations, containing more than 16 thousand hectares of basalt. This mineral has high concentrations of potassium, calcium, magnesium, and other nutrients, making it suitable for use as a soil fertilizer and for the production of soil remineralizers, the central subject of this study.

Remineralizers are materials used in rock application, a soil recovery technique aimed at improving fertility, controlling acidity, and correcting soil aeration and drainage, thereby contributing to environmental protection, enhancing the biological activity of ecosystems, promoting environmental sustainability, among other benefits (Carvalho, 2013).

Since March 2016, the Ministry of Agriculture, Livestock and Food Supply (MAPA) has permitted the registration of remineralizers for specific agricultural use. Normative Instructions No. 5 and No. 6, published on March 10, 2016, established the specifications for the use of these inputs in agricultural activities,



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opening a wide range of possibilities for their application in crop production (Silva, 2021).

Recognizing the importance of soil remineralizers for agribusiness, in 2021 the Geological Survey of Brazil (SGB–CPRM) organized a workshop with specialists in the field to discuss the incorporation of agromineral fertilizers in Brazil and to debate the benefits of their application in agriculture. On that occasion, an informal technical cooperation agreement was also established among the institution, the Municipality of Uberlândia, and the Agricultural Promotion Company (CAMPO) to expand the geological assessments of the Triângulo Mineiro region, which is considered a potential supplier of raw material for the production of basalt remineralizers (Viana, 2021).

Therefore, the evidence demonstrates a genuine interest in advancing the discussion regarding basalt rock dust as a fertilizer. Efforts have even been made in collaboration with the federal government to strengthen structural actions capable of assisting both mining companies and farmers in obtaining financing to support everything from production to the acquisition of soil remineralizers (Municipality of Uberlândia, 2021).

It can be observed that the municipal government has sought to attract partnerships and expand knowledge regarding basalt rock dust since 2017. However, it was only in 2021 that these studies gained greater momentum. There are already advanced-stage field trials involving researchers, students, and farmers from several regions of the country (Uai Agro, 2022).

In this context, Uberlândia leads the process of research and commercial development of basalt rock dust as a soil remineralizer, having established the First Green Agromineral Hub in Brazil in December 2021. The initiative is supported by business leaders in the sector as well as by politicians from the State of Minas Gerais (Diário do Comércio, 2021).



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According to the Municipality of Uberlândia's official website (2021), the launch of the remineralizer hub not only establishes the city as a reference center for rock dust but also strengthens sustainable agriculture through an economical solution with lower environmental impact while simultaneously generating income, employment, and social and technological development for the region.

Indeed, the use of soil remineralizers is advantageous not only for the reasons previously discussed but also because they are less subject to price fluctuations than imported fertilizers, due to lower transportation costs and, above all, because rural areas are still predominantly composed of small-scale farmers who prefer natural products over industrial ones. All these characteristics represent competitive advantages compared with conventional fertilizers (Souza, 2020).

METHODOLOGICAL ASPECTS

A descriptive study of a basic nature with a qualitative approach was conducted, using a single case study as the technical procedure. Documentary sources and interviews — that is, secondary data — were collected and subsequently subjected to discourse analysis and content analysis (Gil, 2002).

Therefore, regarding its objective, this research is classified as descriptive, since it seeks to describe the object of study in depth by establishing relationships among the variables investigated, namely, the establishment of the First Green Agromineral Hub in Brazil in Uberlândia and the marketing positioning adopted by the municipal government regarding the promotion of soil remineralizers as fertilizers (Vergara, 2000).

This is a basic research study because it intends to generate new theoretical knowledge to advance science concerning the development of the basalt rock dust production chain in Uberlândia, Minas Gerais (Gil, 2002).



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Regarding its approach, this is a qualitative study because it involves an interpretative analysis of an organizational phenomenon, revealing the subjective aspects of the problem under investigation and seeking to identify trends among a group regarding the proposed marketing strategies developed by the technical team of the Municipality of Uberlândia to strengthen the production of agromineral fertilizers in the city (Gil, 2002).

The research design adopted was a single case study since basalt remineralizer is a product that has only recently entered the commercial market, and there are still few studies addressing it. Consequently, the boundaries between the phenomenon and the context in which it is embedded have not yet been clearly established (Yin, 2015).

Data collection was carried out through discourse analysis and content analysis using interviews given by individuals involved in promoting the Green Agromineral Hub available on the Internet, aiming to capture additional details about the phenomenon, as well as news reports addressing the topic published online from December 2021, when the Green Agromineral Hub was launched in Uberlândia, until June 2022.

The databases used were Google® and YouTube®. The inclusion criterion consisted of reports concerning the First Green Agromineral Hub in Brazil, located in Uberlândia, which consequently excluded materials unrelated to the topic. The selected search descriptors were "First Green Agromineral Hub in Brazil," which returned a total of 16 textual results and six videos. Based on the marketing positioning framework, 10 news reports and three videos were selected.

RESULTS

On December 8, 2021, in Uberlândia, authorities and representatives of Brazil's agribusiness sector gathered for the launch of the First Green



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Agromineral Hub. The ceremony marked another milestone in transforming the city into a national reference in the production and commercialization of soil remineralizers through the establishment of partnerships among the Geological Survey of Brazil, the railway logistics company VLI, the Agriculture Foundation of the State of Minas Gerais (FAEMG), financial institutions, among others, highlighting the potential and applications of basalt not only in production but also in the logistics network of the Triângulo Mineiro region (Portal Regionalzão, 2021).

On that occasion, a cooperation agreement was also signed between the Municipality of Uberlândia and Banco do Brasil for the implementation of a credit program aimed at financing the needs of rural producers regarding the adoption of good environmental, social, and governance practices, among which the production of rock dust is included (Diário do Comércio, 2021).

Likewise, the Agricultural Promotion and Technology Company (CAMPO) and the Municipality of Uberlândia signed, during the same event, a service agreement to map and quantify the basalt potential of the region. The initiative also included assistance to mining companies regarding registration with MAPA, guidance in developing the business plan for the production chain, and the identification and attraction of new investors.

The partnership with VLI, in turn, seeks to foster more resilient and sustainable agriculture, especially because the company responsible for operating the Centro-Atlântica Railway (FCA) has a sustainable territorial development plan aimed at expanding agricultural areas surrounding its railway concessions, increasing freight transportation while promoting employment, quality of life, and the development of an entire supplier network. In this context, the production of rock dust represents a viable alternative within its strategic objectives (Portal G1 Triângulo Mineiro, 2021).



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Accordingly, it is important to include the statement of former Minister of Agriculture Alysson Paolinelli, who argues that producers, organizations representing the agricultural sector, mining companies, and financial institutions must work together so that Brazil can advance in the production of alternatives to imported fertilizers (Diário do Comércio, 2021). On the occasion, the Mayor of Uberlândia, Odelmo Leão (2021), declared that he believes:

We are witnessing a new agricultural revolution with the widespread use of rock dust for soil remineralization. In Uberlândia, basalt dust is abundant, rich in minerals, and represents a new step toward strengthening the logistics surrounding this product (Portal G1 Triângulo Mineiro, 2021).

Agronomist Marcos Ramos, from the Municipality of Uberlândia, adds, based on research findings, that the municipality is abundant in basalt (the essential raw material for producing the basalt rock dust soil remineralizer), with 16 thousand hectares containing the mineral extending from the Uberabinha River to the Araguari River. Furthermore, he points out that studies conducted by the Federal University of Lavras (UFLA) have confirmed the quality of this material for agricultural use, although greater investment is still needed to ensure that initiatives of this nature continue promoting sustainable and healthy agriculture for the regional population (YouTube Video 1, 2021). In an interview with the Municipality of Uberlândia's official website (2021), the agronomist also stated that the potential of basalt remains little known, although research is advancing and indicates that it could become a resource capable of reducing large-scale production costs, provided that greater support is secured to prevent research activities from being discontinued.

Supporting the agronomist's statement, the Executive Representative of the Municipality of Uberlândia argues that the Green Agromineral Hub will position rock powders on the market at prices lower than conventional fertilizers, since their production costs are relatively lower than those associated with synthetic fertilizers, as shown in YouTube Video 2 (2021).



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Research conducted with beans, passion fruit, corn, and pasture at the UFU experimental farm demonstrates that basalt rock dust assists in restoring soil in the most natural way possible (Federal University of Uberlândia, 2022). The same study also reveals that the material is a low-cost input capable of contributing to sustainable agriculture. However, it does not yet have the capacity to replace soluble fertilizers or eliminate dependence on imported products; rather, it enhances the effectiveness of fertilizers.

Corroborating Marcos Ramos' statement, CAMPO carried out an experiment on extensive soybean crops in the states of Minas Gerais, Goiás, and Tocantins and observed considerable visual improvements in plant health following the application of rock dust. Nevertheless, these results still require laboratory validation.

It is evident that there is a strong emphasis on sustainable agricultural production through the use of basalt rock dust, contrasting with the negative image often associated with Brazilian agriculture. This perspective is reflected in the statement of the President of the Rural Union of Uberlândia, Thiago Silveira (2021):

(...) we want to show that Brazilian agribusiness is capable of producing high-quality food without causing any impact on the environment, because agribusiness is often blamed for several situations that are simply not true" (YouTube Video 3, 2021).

There is therefore evidence that the technical team is committed to promoting the Green Agromineral Hub and its main product, basalt rock dust. In fact, the theme of the 2022 Minas Gerais Agribusiness Fair (Femec, 2022), considered the principal event in the State of Minas Gerais for the commercialization of agricultural machinery, equipment, and inputs, was "Sustainable Agribusiness Feeding the World" (Portal G1, 2021), aligning with the discourse adopted by authorities and companies in the agricultural sector to encourage the use of soil remineralizers.



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The documentary research identified a promising regional market in which the Municipality of Uberlândia has virtually no competitors, since only three mining companies currently offer rock dust for sale, all of them located in Brazil's Central-West region. This is not viewed as a major obstacle because the transportation costs required to ship the product from another state to Minas Gerais would likely encourage the adoption of locally produced inputs.

The Municipal Secretary for Agribusiness, Economy, and Innovation of Uberlândia stated that rural producers are already observing improvements resulting from the application of rock dust in agricultural fields, providing encouragement for the continuation of this initiative, since it represents a way to support local producers while generating income (Municipality of Uberlândia, 2021).

Studies conducted by the Municipality of Uberlândia in 2017 indicated the feasibility of using rock dust to improve soil quality and demonstrated that its physicochemical characteristics complied with MAPA's normative instruction (Municipality of Uberlândia, 2021). Researchers in the field advocate the use of rock powders as an alternative for mitigating the fertilizer crisis associated with soluble fertilizers, calling for financial incentives and public policy support to promote their development (Diário do Comércio, 2021), especially in light of rising fertilizer prices in Brazil and the threat of shortages resulting from the war between Ukraine and Russia.

Thus, it is evident that the Municipality of Uberlândia is committed to developing the soil remineralizer production chain by establishing partnerships that add value to rock dust through improvements in production infrastructure, logistics, financial support, and technical assistance. Agricultural fairs are also organized to promote agribusiness in the municipality, while initiatives are publicized through television and Internet media, reflecting a discourse aligned



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with building a positive image of the Green Agromineral Hub and rock powders, emphasizing affordability, sustainability, and regional identity.

This is confirmed by a survey conducted using the Google® search engine, applying the inclusion and exclusion criteria described in the Methodological Aspects section, as shown in Chart 1.

Chart 1 – News reports published on the Internet about rock dust

Title	Source	Date	Cited persons	Analysis
Primeiro Polo Agromineral Verde é lançado em Uberlândia	Diário de Uberlândia	08/12/2021	Mayor of Uberlândia, Head of the Conservation Agriculture Division, CAMPO Director.	The Municipality of Uberlândia has the knowledge and infrastructure required to transform the city into the national benchmark for the production and distribution of soil remineralizers in Brazil. Rock dust, in turn, can help rural producers cultivate food in a healthier and more affordable way, contributing to sustainable agriculture.
Prefeitura de Uberlândia Lança Primeiro Polo Agromineral Verde do Brasil	Prefeitura de Uberlândia	08/12/2021	Mayor of Uberlândia, Governor of Minas Gerais, and former Minister of Agriculture, Professor Alysson Paolinelli.	With the recognition of the city as a center for the commercialization and processing of rock dust, the local and regional economy stands to benefit, marking the beginning of a new agricultural revolution that promotes more sustainable agriculture and higher-quality products.
Primeiro Polo Agromineral Verde é lançado em Uberlândia na Femec	G1	08/12/2021	Mayor of Uberlândia, CAMPO Director.	Basalt rock dust has the potential to attract new companies to the region and bring in new investors, which, in addition to boosting the economy, can lead to higher-quality products.
Uberlândia lança Primeiro Polo Agromineral Verde nesta quarta-feira	O Tempo	08/12/2021	Municipal Executive Representative.	The initiative will bring technological and environmental innovation to food production in Brazil.

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Chart 1 – News reports published on the Internet about rock dust - continuation

Title	Source	Date	Cited persons	Analysis
Primeiro Polo Agromineral Verde do Brasil tem apoio do sistema FAEMG	Canal Rural	09/12/2021	Mayor of Uberlândia	Uberlândia has the expertise to promote the soil remineralizer sector. Furthermore, it has been seeking support from the state and federal governments to strengthen the city's logistics infrastructure, implementing structural actions to help mining companies and farmers obtain financing that enables everything from the production to the purchase of rock dust.
Primeiro Polo Agromineral Verde do Brasil tem apoio da FAEMG	FAEMG	10/12/2021	President of FAEMG/SENAR /INAES Trade Unions, Mayor of Uberlândia.	Rock dust is a sustainable and viable alternative for agriculture, capable of generating higher-quality products, and has the support of the representatives of rural producers in the State of Minas Gerais.
Uberlândia Lança Primeiro Polo Agromineral Verde do País	Diário do Comércio	11/12/2021	CAMPO Director, Secretary of Economic Development of the State of Minas Gerais.	The hub is an important instrument for mineral exploration, reducing the import of agricultural inputs while promoting more sustainable food production, and it has the support of the Government of Minas Gerais.
Uberlândia cria Polo Agromineral Verde	Brasil Mineral	22/03/2022	Mayor of Uberlândia, Superintendent of Banco do Brasil, Director of SGB-CPRM.	Agribusiness is going through a critical period and requires support, public policies, and innovation to transform the agricultural sector, and the SGB supports research in this area.
Uberlândia cria Polo Agromineral Verde	Radio Cidade Tupaciguara	31/03/2022	Mayor of Uberlândia, Superintendent of Banco do Brasil.	Rock dust has the potential to transform the agricultural sector, but investment and credit lines are needed to support the production and commercialization of soil remineralizers.

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Chart 1 – News reports published on the Internet about rock dust - continuation

Title	Source	Date	Cited persons	Analysis
Balança comercial de Uberlândia bate recordes	Jornal de Uberaba	02/06/2022	President of FAEMG/SENAR/NAES Trade Unions, Mayor of Uberlândia.	The city has great productive potential in the agribusiness value chain, and basalt rock dust can further improve agricultural performance by enhancing sustainability and fostering local development.

Source: Research data (2023)

The data show a coordinated effort by public and private entities to promote the development of the First Green Agromineral Hub in Uberlândia. The plan is to facilitate its insertion into the agribusiness market through accessible credit lines provided by financial institutions, enabling both small farmers and mining companies to produce and commercialize rock powders. Another important factor for this market insertion is the search for investors to support research and agribusiness development, demonstrating the effectiveness of these alternative fertilizers, as well as securing support from the federal and state governments for the creation of public policies and logistical infrastructure that encourage technological and environmental innovation, within which soil remineralizers fit. Thus, this section concludes with a statement by the Mayor of Uberlândia (2021):

The public sector must act as a facilitator, and making an opportunity like this feasible by bringing together those who already have the expertise to manufacture machinery and equipment for rock application with mining companies interested in investing in the production and commercialization of rock dust is yet another demonstration of how we are working to make soil remineralizers a reality as soon as possible. We already know, based on proven evidence, that rock dust, such as basalt, can restore and strengthen soils and transform food production in Brazil (Portal Regionalzão, 2021).

DISCUSSION AND CONCLUSIONS

The objective of the Municipality of Uberlândia with the Green Agromineral Hub is to establish the municipality as a national benchmark in the production and distribution of soil remineralizers. To achieve this, the



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segmentation and differentiation strategies adopted were proximity, sustainability, price, and regional identity.

Accordingly, green marketing strategies have been employed to promote the Uberlândia Green Agromineral Hub. However, the actual benefits of rock dust for agriculture remain uncertain, since there are still few studies on the subject. This indicates that agribusiness in Uberlândia requires greater investment in research to establish reliable evidence regarding product quality and to encourage financial institutions to invest in it.

Although this represents a promising and rapidly developing market in the region, the challenges associated with introducing rock dust into the marketplace are considerable, since its establishment requires a network of supporters and financial backing, as well as effective communication with the intended audience, all of which are still under development.

Furthermore, the launch of the Green Agromineral Hub was more theoretical than practical, given that it involved extensive media coverage, particularly on television and the Internet, presenting research findings and promoting the concept through public events. Nevertheless, the city does not yet extract the product that is intended for commercialization, namely rock dust.

In light of the above, it is necessary to define the product, its characteristics, the organization's values, and to develop a marketing plan aimed at achieving a more assertive market positioning.

Ultimately, the findings reveal that the Municipality of Uberlândia seeks to differentiate basalt rock dust in the marketplace through pricing, sustainability, and regional identity, portraying the city as an abundant source of rock dust capable of generating economic growth, income, employment, and local development. However, because this is a product that has only recently entered the market, there has not yet been sufficient time to establish its intended image or create perceived value around it, making effective positioning difficult.



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It is still too early to conclude that the Municipality's marketing positioning regarding rock dust has been consolidated, particularly because the product remains under study and available results are still limited. In addition, there are few competitors in the market. Nevertheless, technical reports indicate its feasibility for improving soil quality, its competitive price, and material characteristics that could stimulate its production.

Thus, the commitment of the team responsible for promoting the Green Agromineral Hub in Uberlândia is evident through campaigns aimed at attracting investors and researchers, as well as encouraging the creation of public policies and favorable structural conditions. However, before anything else, it is necessary to define the elements that guide marketing positioning, such as value, mission, and target audience, thereby strengthening the product's competitive advantages in the marketplace.

Since Uberlândia is situated on an extensive basalt deposit, one recommendation for the Municipality of Uberlândia is to conduct market research with local farmers to measure their level of interest in the product. Furthermore, the municipality could consult landowners whose properties contain basalt in order to evaluate the commercial feasibility of exploiting this resource. Finally, the municipality should conduct additional experiments with soil remineralizers on small rural properties to verify their advantages and possible side effects, providing free technical support from soil preparation through harvest for farms using this fertilizer. In doing so, it would obtain concrete results to support the future commercialization of the product, moving from a merely theoretical or abstract promotional approach to something tangible.

FINAL CONSIDERATIONS

The objective of this study was to analyze the establishment, positioning, and expectations surrounding the First Green Agromineral Hub in Brazil, and



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these objectives were achieved. The findings reveal that its insertion into the agribusiness market has been driven by the efforts of the Municipality of Uberlândia in partnership with public and private organizations. These partnerships aim to develop a structure capable of producing natural fertilizers that are both socially and environmentally more equitable, since the technology involved generates lower environmental impacts than conventional fertilizer extraction, requires fewer financial resources, and strengthens the sustainability of its surrounding region by generating income and employment.

Regarding positioning, the Municipality of Uberlândia has acted to promote basalt rock dust as its principal commercial product, emphasizing proximity, price, regional identity, and sustainability, since it is a clean product that can be extracted and used locally, reducing transportation and storage costs while stimulating regional agriculture.

With respect to expectations, there is an intention to expand bank credit lines so that potential producers and traders will invest in basalt rock dust production. In addition, the municipality has sought to attract external investors to expand production, while research is being conducted to validate the quality of the soil remineralizer.

However, because the Green Agromineral Hub of Uberlândia is a recent initiative, launched in December 2021, this study is limited by the scarcity of published data, as well as by potential bias in the analyzed discourses, since they primarily reflect the perspectives of interested parties, such as politicians and the media, without explicitly presenting many contradictions.

Therefore, considering that the Green Agromineral Hub and the product it promotes (basalt rock dust) have the potential to contribute to sustainable agriculture, further studies on this subject are warranted. As a recommendation for future research in the field of management, a more in-depth study involving members of environmental organizations and representatives of communities



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affected by the quarries from which rock dust is extracted is suggested, using interviews and quantitative data to assess the actual socio-environmental impacts of this activity.



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