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ASSESSMENT OF THE POTENTIAL FOR RECOGNITION OF A GEOGRAPHICAL INDICATION FOR ONIONS FROM SÃO JOSÉ DO NORTE AND THE SURROUNDING REGION

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Abstract: *The onion, originally from Central Asia, was introduced to the coast of Rio Grande do Sul (RS) in the 18th century by Portuguese immigrants, especially from the Azores, and has since become an economic and cultural element of the region. This cultivar is present in more than 170 countries, with significant global production reaching 111 million tons in 2023; India and China lead the list of the largest producers. In Brazil, onions have great socioeconomic importance, especially for family farming. The São José do Norte region, on the southern coast of the state, stands out as one of the main producers in Rio Grande do Sul, due to traditional practices and edaphoclimatic conditions. Thus, the objective is to conduct a preliminary survey of elements related to the potential for recognizing onions produced in the São José do Norte region as a geographical indication. The methodological model of the Virtuous Circle of Quality Linked to Origin, from the Food and Agriculture Organization of the United Nations (FAO), is followed, with stages of identification, qualification, remuneration, resource reproduction, and public policies. The results reveal a strong historical tradition, cultivation practices adapted to the coastal environment, cultural identity, and support from entities such as Embrapa and the local Cooperative. Despite logistical challenges, the implementation of public policies and collaboration between institutions can favor the recognition of the Geographical Indication (GI), generating territorial appreciation, sustainable development, greater market visibility, and boosting rural tourism.*

Keywords*: onion; geographical indication; São José do Norte; family farming; territorial development.*

AVALIAÇÃO DO POTENCIAL PARA RECONHECIMENTO DE INDICAÇÃO GEOGRÁFICA DA CEBOLA DE SÃO JOSÉ DO NORTE E REGIÃO

Resumo: A cebola, originária da Ásia Central, foi introduzida no litoral do Rio Grande do Sul (RS) no século XVIII por imigrantes portugueses, especialmente açorianos, consolidando-se, com o tempo, como elemento econômico e

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cultural da região. A cultivar está presente em mais de 170 países, com produção mundial expressiva, atingindo 111 milhões de toneladas em 2023, com a Índia e a China liderando a lista dos maiores produtores. No Brasil, a cebola possui grande relevância socioeconômica, especialmente para a agricultura familiar. A região de São José do Norte, no litoral sul do estado, destaca-se como uma das principais produtoras do RS, devido às práticas tradicionais e às condições edafoclimáticas. Deste modo, o objetivo é realizar um levantamento preliminar de elementos relacionados ao potencial de reconhecimento da cebola produzida na região de São José do Norte como possível indicação geográfica. Segue-se o modelo metodológico do Círculo Virtuoso de Qualidade Ligada à Origem, da *Food and Agriculture Organization of the United Nations* (FAO), com etapas de identificação, qualificação, remuneração, reprodução de recursos e políticas públicas. Os resultados revelam forte tradição histórica, prática de cultivo adaptadas ao ambiente litorâneo, identidade cultural e apoio de entidades como a Embrapa e a cooperativa local. Apesar de entraves logísticos, a implementação de políticas públicas e a colaboração entre instituições podem favorecer o reconhecimento da IG, gerando valorização territorial, desenvolvimento sustentável, maior visibilidade no mercado e potencializar o turismo rural.

Palavras-chave: cebola; indicação geográfica; São José do Norte; agricultura familiar; desenvolvimento territorial.

1. Introduction

Originally from Central Asia, the onion is one of the oldest cultivars, brought to the Americas by European colonizers. In the mid-eighteenth century, Portuguese immigrants, particularly Azoreans, introduced rice cultivation to the coastal region of Rio Grande do Sul (RS) and passed down their cultivation techniques and knowledge through successive generations. Grown in more than 170 countries, where cultivation practices, seasonal variations, advances in production services, and the adoption of modern techniques represent increased productivity and improved product quality. Reflecting on sensory characteristics such as taste, acidity, and pungency. Factors such as soil, climate, and traditional know-how influence both organoleptic properties and production efficiency (Correa et al., 2019; Mahajan et al., 2021; Osorio, 2022; Priya et al., 2025; Sagar et al., 2022)..

In 2023, according to data from the Food and Agriculture Organization of the United Nations (FAO), world production of the vegetable reached approximately 111 million tons (including shallots), being cultivated on approximately 6 million hectares. India (30,208,000 tons) and China (24,860,319 tons) together account for approximately 49.55% of the world's vegetable production (FAO, 2023).

Brazil, with approximately 1.47% of world production, is the 14th-largest onion producer, producing 1,639,970 tons and standing out on the international scene. Present in 16 Brazilian states, chive farming is an agricultural activity of socioeconomic relevance to Family Farming and one of the most predominant (Leite *et al.*, 2021; Vilela *et al.*, 2005). In Rio Grande do Sul, which has the 3rd largest cultivated area among the Federation Units, onion cultivation stands out in the region of São José do Norte, composed of the municipalities of Mostardas, São José do Norte and Tavares, responsible for the planted area of 2110 hectares in 2024, which represented just over 36% of the planted area of the entire state (Sidra, 2025).

Recognized worldwide as the most widespread spice vegetable, being incorporated into numerous cooking methods to enhance flavors in various cultures (FAO, 2023; Kaur *et al.*, 2023; Sebrae, 2020). The quality of onion lies in the versatility of its characteristics, such as the differential of multifunctional compounds, organosulfur, phenolic, and polysaccharides that offer health benefits such as anti-obesity, anti-diabetic, antioxidant, and anti-inflammatory metabolic activities. In addition, phytocompounds have cardioprotective, immunomodulatory, antimicrobial, hepatorenal, gastroprotective, and neuroprotective bioactive properties, antitumor effects, and the induction of apoptosis and autophagy (Zhao *et al.*, 2021). The quality of onion lies in the versatility of its characteristics, such as the differential of multifunctional compounds, organosulfur, phenolic, and polysaccharides that offer health benefits such as anti-obesity, anti-diabetic, antioxidant, and anti-inflammatory metabolic activities. In addition, phytocompounds have cardioprotective, immunomodulatory, antimicrobial, hepatorenal, gastro and neuroprotective bioactive properties, antitumor effects, induction of apoptosis and autophagy (Embrapa, 2025; Lee; Patil; Yoo, 2015; Mahajan et al., 2021; Sagar et al., 2022; Zhao et al., 2021). In this scenario, the onion of São José do Norte also presents distinctive characteristics related to environmental conditions and traditional management, transmitted across generations.

The Geographical Indication (GI) is an important recognition of the characteristics and qualities of the onion from São José do Norte, protecting the local production chain and ensuring differentiation in the market. In addition to highlighting the qualities that make the cultivar unique and exclusive in relation to those of other regions, either by the recognition of the geographical name or by favorable factors, natural and human. It is a strategic way to value, enhance, and preserve the local economy, and protect against unfair competition from clandestine producers. The GI, when aligned with a corporate governance structure and coordinated, can provide relevant economic impacts by enabling the management system to carry out actions to promote environmental, economic, and social benefits of the local production chain (D´Alexandria, 2015; Nascimento; Nunes; Bandeira, 2012; Palhares; Gebler, 2014; Pires; Coletto; Callegaro, 2020). The GI, in relation to the National Institute of Industrial Property (INPI), aims to protect and value the product linked to its geographical origin. Protection through a GI can manifest itself in two types: Indication of Origin (IP) and Denomination of Origin (DO) (INPI, 2022).

Technology has transformed agriculture not only in how it is produced, but also in how it protects producers and consumers (Bagri, 2024). In this sense, the objective of this study is to conduct a preliminary survey of elements related to the potential for recognizing onions produced in the São José do Norte region as a geographical indication. With virtuous-circle results, the aim is to identify not only strengths but also opportunities. Highlighting the complex

relationships of the scenario between history, geography, agricultural practices, and the local economy. It also encompasses the challenges and opportunities for adaptation, the growth of agriculture in the region, and the region's peculiar social, economic, and environmental aspects.

2. Legal aspects

In Brazil, the recognition and protection of GIs are consolidated through administrative procedures and the technical requirements of the INPI/PR Ordinance No. 04/2022, in accordance with article 176 of Law No. 9,279/1996. The legal provision applies to both PIs and ODs, establishing objective criteria to demonstrate the link between the product or service and the territory. This ordinance reinforces not only the collective character but also the diffuse nature of the right to GI, attributing legitimacy to regional representation entities in the registration process and providing normative certainty. The ordinance ensures that GI recognition is based on reputation criteria verifiable through environmental and human characteristics or qualities. In this context, the GI assumes a strategic role in territorial enhancement, promoting the preservation of cultural heritage and sustainable economic development (Brasil, 1996; Van, 2024a).

Decree 1,355, of December 30, 1994, enacted the Protocol of Amendment to the Agreement on Trade-Related Aspects of Intellectual Property Rights (ADPIC/TRIPS), which establishes in article 22 the provisions on the Protection of GIs. Defining them as distinctive signs that identify the origin of a product with quality, reputation, or other characteristics is essentially a matter of geographical origin. This legal provision serves a dual purpose: it serves as an instrument that guarantees the authenticity and intrinsic qualities of the product while preserving and valuing the cultural and economic interests of local producers, adding protection to the product against unfair competition and the usurpation of its reputation of origin (Brasil, 1994; Brasil, 2018; Van, 2024b).

According to Law 9.279/1996 (Industrial Property Law – LPI), geographical indications can be of the indication of origin (IP) or denomination of origin (DO) modalities. The IP uses the geographical name of a country, city, region, or locality in its territory, which has become known as a center of extraction, production, or manufacture of a certain product or provision of a certain service (Brasil, 1996).

On the other hand, DO is considered the geographical name of a country, city, region, or locality within its territory, which designates a product or service whose qualities or characteristics are exclusively or essentially due to the geographical environment, including natural and human factors. In practical terms, IP focuses on the region's reputation and notoriety, "known as a center of extraction, production, or manufacture of a certain product or provision of a certain service". In relation to OD, there must be peculiar characteristics of the geographical environment, including

natural factors, such as soil, relief, climate, flora, fauna and humans, such as characteristic elements of the community producing or providing the service, such as local know-how, including the development, adaptation or improvement of specific techniques linked to the culture and tradition of the locality (Goulart et al., 2023; Rosa et al., 2023; TY; Devaraja, 2024; Vieira; Pellin, 2015).

Although the study has identified preliminary elements associated with the potential for recognition of regional onions as GIs, it is noteworthy that future steps, with greater depth, would still be necessary for an eventual request to the National Institute of Industrial Property (INPI), including: definition and consolidation of the territorial delimitation; preparation of technical specifications; establishment of control and governance mechanisms; definition of the requesting representative entity; and expansion of evidence related to reputation and the link between product and territory.

3. Virtuous Circle

The Virtuous Circle of Quality Linked to Origin is structured around an approach that promotes appreciation and sustainability of products through a GI. The fundamental steps are: i) Identification and awareness of the product's potential; ii) the qualification of the product; iii) the remuneration of the product; iv) Reproduction of local resources; and v) Public Policies. The first stage, Identification, highlights the relationships among the territory, the product, and the actors to promote sustainable development.

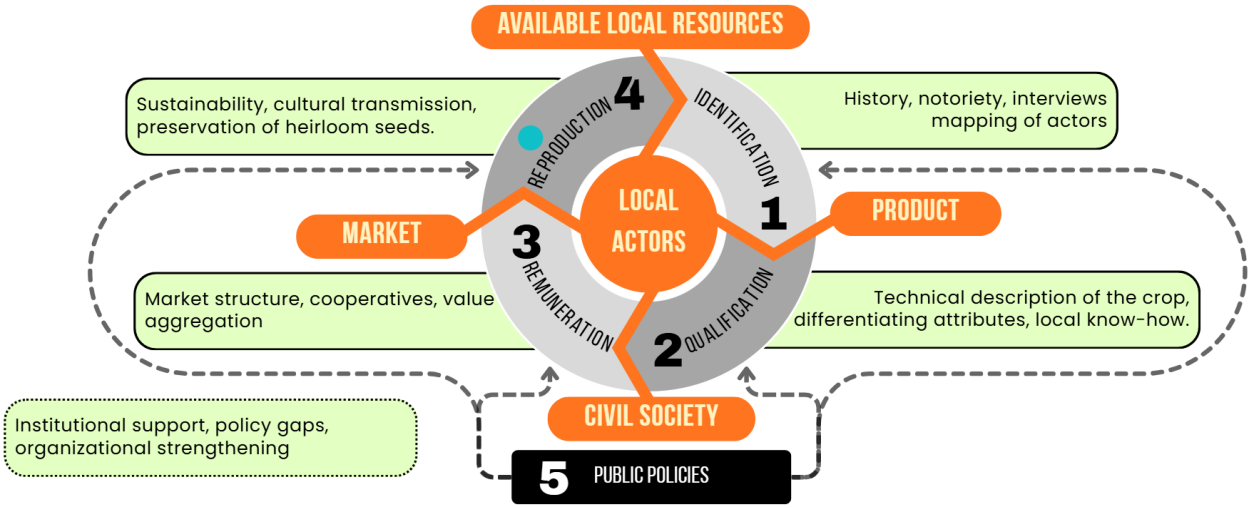
The second stage, Product Qualification, is aimed at developing a GI regulation that establishes rules for the production, preservation, and enhancement of local resources. At this stage, actors in the production chain must actively engage, as they hold traditional knowledge about the product. The third stage, Product Remuneration, aims to ensure long-term economic viability, adjusting the marketing process to local management. The fourth stage, the Reproduction of local resources, ensures the preservation of human and natural resources and maintains the sustainability of the GI system. The fifth stage, Public Policies, emphasizes strengthening the GI system through an institutional framework that supports local initiatives, which is crucial for local territorial development (Caldas; Araújo; Coury, 2017; Freitas; Barbalho, 2023).

To value products with geographical identity, the FAO proposed the Virtuous Circle methodology. Constituting a systemic approach to the promotion of sustainable territorial development. The intrinsic quality of certain products is closely linked to the terroir (the production environment), allowing for distinctive recognition at the expense of the specific characteristics inherent to the region's edaphoclimatic and anthropic context. The specific quality gives the product the strategic potential for sustainable development. In this sense, local actors can

convert endogenous resources into tangible assets. Thus, resulting in social recognition and the optimization of remuneration, fostering a cycle of socioeconomic and environmental valorization (FAO, 2025).

Figure 1 presents the Origin-Linked Quality Virtuous Circle, adapted from the FAO model (2025), demonstrating the five-step process. In the center is the element "Local Actors", around the stages of the process. The structure reveals an interaction model for local development and resource management, in which the "Local Actors" interact with other components, such as the market, products, civil society, and public policies. In light green, the steps methodologically followed by the study.

Figure 1 – Virtuous Circle of Quality Linked to the Origin



Source: Adapted by the authors (FAO, 2025).

In the Brazilian context, various GI initiatives have applied this methodology, including the evaluation of the GI potential of artisanal biscuits from Vitória da Conquista (BA) and traditional ceramics from Maragogipinho (BA). In both cases, the application of the virtuous circle revealed structural obstacles, such as the absence of collective organization, gaps in local governance, and insufficient public policies, and made it possible to outline strategies to overcome them, such as the establishment of producer associations, the strengthening of the production chain and the articulation with public and private institutions (Caldas; Araújo; Coury, 2017). The articulation between the Brazilian legal framework and FAO's methodology reinforces the strategic role of GIs as instruments of integrated territorial development, capable of promoting the appreciation of traditional products, stimulating cultural tourism, encouraging environmental sustainability, and fostering the socioeconomic inclusion of local communities. Sebrae's methodology, through the Diagnosis model, focuses primarily on technical and legal feasibility in the initial phase of a GI, such as the structuring of a Specification Book and compliance with the requirements for registration with the BPTO. The choice of FAO's Virtuous Circle was due to its

ability to transcend the merely registry scope of the GI, positioning itself as a strategic instrument of territorial management and long-term sustainable development. The success of GIs depends on the existence of territorial governance, collective mobilization, and coherent public policies, which ensure assistance and provision of structure, the reproduction of resources, and the competitiveness of products in the market (Caron *et al.*, 2017; Lima *et al.*, 2023; Silva; Rodrigues; Silva, 2022).

4. Methodology

The present study for the diagnosis of GI feasibility for the region of São José do Norte, located in the state of Rio Grande do Sul, follows the GI diagnosis methodology of the model called Virtuous Circle of Quality linked to Origin, which proposes an evaluation integrating economic, productive, cultural, and territorial dimensions. The research has an applied nature, an exploratory character, and an approach based on qualitative techniques. Data collection used bibliographic and documentary research procedures, as well as semi-structured interviews conducted in October 2025.

It is noteworthy that the research has a preliminary and exploratory character, given the limited empirical base of institutional actors directly linked to the onion production chain in the region under analysis. Thus, although the interviews conducted have enabled the initial identification of elements related to the territorial and productive potential for GI recognition, there is a need to expand the sample in future studies. Which, in this context, includes rural producers, marketing agents, and other actors involved in the onion production chain, aiming to deepen and validate the analyses presented.

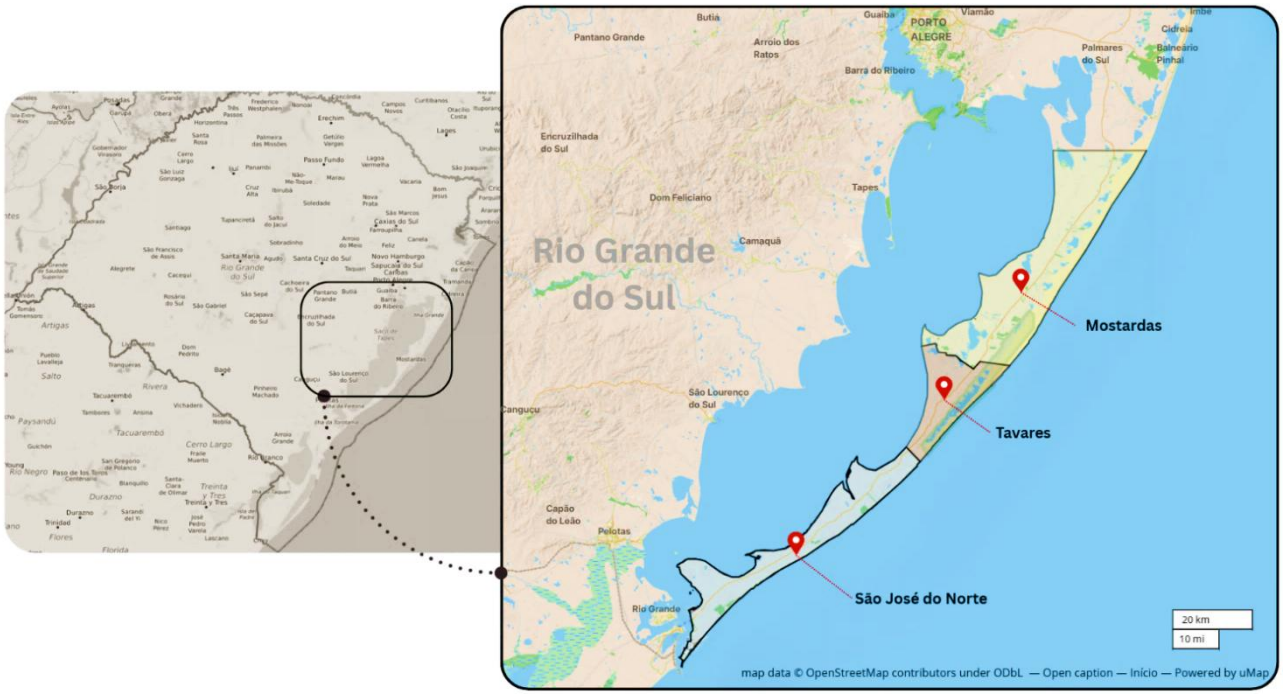
The study area comprises the municipalities of São José do Norte, Rio Grande, Mostardas, and Tavares, located on the southern coast of the state of Rio Grande do Sul, traditionally associated with onion cultivation. The territory has unique edaphoclimatic conditions due to the type of sandy soil and maritime climate, and which also has the water mirror depth of the Patos lagoon, which, added to production practices adapted by the way of planting in beds of raised lintels due to the large amount of unity of the coastal environment and the intergenerational transmission of agricultural knowledge, gives the product its own identity. This relationship between environment and culture underpins the study's analytical axis, which seeks to recognize the product's uniqueness as an expression of the coastal territory of southern Rio Grande do Sul.

The cities of São José do Norte, Tavares, and Mostardas are located on a coastal strip in Rio Grande do Sul, bordered to the east by the Atlantic Ocean and to the west by Lagoa dos Patos. The region, marked by a restinga, extends linearly in a south-north direction and as a specific

geographical sequence: São José do Norte at the southern end, followed by Tavares and, further north, Mostardas (IBGE, 2025).

The municipalities are close to one another, and Tavares borders both cities. The main access to the region, made by BR-101, crosses the area near the municipalities of Tavares and Mostardas, while São José do Norte, located near the Rio Grande Canal, connects to the city of Rio Grande by ferry. Figure 2 shows the geographic location of the municipalities located in the coastal strip of RS.

Figure 2 - Geographical location of the municipalities of São José do Norte, Tavares, and Mostardas



Source: uMap, 2025 – Adapted by the authors (2025).

Each stage of this study analyzed a phase of the virtuous circle. The first stage was identification, which consisted of a historical and documentary survey of local production and the mapping of the main actors in the production chain, which initially comprised consultation with public agencies, such as Embrapa. This phase includes an interview with a member of Embrapa, who works throughout the territory covered by this study, in which we sought to understand the following dimensions: product, territoriality, production method, governance, identity and belonging, economic performance, need for protection, research involved, and vision of the future. This stage also include an interview with a local family farmer, representative of Cooafan (cooperative of family farmers of São José do Norte), with main activity in the city. The interviews provided a broader view of the perceptions and expectations that structure the local productive arrangement.

In the second stage, focused on the qualification of the product, efforts were concentrated on the description of the onion production process, from soil preparation to harvesting, presenting the product's differentiating attributes. This stage allowed the identification of links between the natural conditions of the territory and the traditional practices used in cultivation, showing how local know-how contributes to the perceived quality of the product.

Regarding the third stage, focusing on remuneration and commercialization, the information collected focused on production volumes, distribution channels, prices, and market challenges. This phase allowed us to analyze the potential for adding value through recognition of origin, observe how the product is positioned in marketing networks, and assess the impact of seasonality on farmers' income.

The fourth stage focused on local resource reproduction, investigating the adoption of sustainable practices and the capacity to reproduce the territory's natural and cultural resources. This analysis focuses on the understanding of the balance between productive intensification and the preservation of traditional knowledge, both of which are essential to the sustainability of a GI.

Finally, the fifth stage sought to verify the existence of public policies and institutional governance associated with local ceboliculture. It sought to identify the forms of collective organization and the technical support provided by institutions such as Embrapa, Sebrae, Emater/RS, and the municipal government, which are important elements for advancing a certification of origin process.

5. Results and discussion

The results presented below describe the items observed in relation to notability and the virtuous circle stages. Stage 1, Identification, comprises the historical and documentary surveys and the actors in the production chain. Revealing the historical relevance of the onion of São José do Norte, since the eighteenth century, consolidating itself as a cultural identity element of the region. In this stage, agents of the production chain, local actors, were identified, highlighting the performance of the cooperative and public and private institutions, such as Embrapa, Emater/RS, Sebrae, and the Municipalities of the region, which offer support to the sector. The analysis revealed cooperation between institutions and farmers, which strengthens the productive arrangement and increases the likelihood of formalizing a GI.

The elements identified in this article dialogue with discussions observed in other experiences related to GIs applied to agri-food products, especially regarding territorial valorization, the product's reputation, and the preservation of local production practices. In the same way as observed in other national and international contexts of recognition of agricultural GIs, aspects such as collective organization, governance mechanisms, productive standardization,

and technical demonstration of the relationship between product and territory, also present relevant challenges for the consolidation of eventual recognition of the onion of São José do Norte as a GI. In this sense, the results obtained do not indicate an isolated or exclusive condition, but show preliminary elements compatible with debates already identified in the specialized literature on territorial valorization of agri-food products.

The Product Qualification stage highlights differentiating attributes, such as the use of native cultivars and the adaptation of agricultural practices to coastal conditions, including the implementation of raised beds and storage in the form of braids, called réstias, which are quite traditional in the region. In addition, it is noteworthy that local know-how represents a tradition passed down from generation to generation, contributing to the quality of the product, and is evident in the thick skin and distinctive flavor. It is important to note that the distinctive characteristics attributed to onions, taken as preliminary indicators, require future validation through specific technical analyses.

It was also verified that Embrapa's collaboration in the development of cultivars adapted to the region's specific edaphoclimatic conditions. Although the onion production chain in São José do Norte is considerable to the local economy, the Remuneration stage revealed that commercialization faces considerable challenges. Predominantly local, the commercialization of production relies on intermediaries, limiting producers' control over prices and profit margins. Efforts by local actors to overcome these difficulties were identified, such as diversifying product offerings and participating directly in fairs and markets, especially in Porto Alegre. The analysis highlights the dependence on intermediaries, the scarcity of distribution channels (the flow of the region's production chain), and the implementation of a GI, which could add value to the product.

During the Local Reproduction of Resources stage, it is possible to observe farmers adopting sustainable practices, such as traditional techniques adapted to the coastal climate, such as raised beds, which contribute to reducing the impacts of intensive agriculture. The intergenerational transmission of know-how and the conservation of native seeds are fundamental aspects of the region's production system. These sustainable practices reinforce cultural and environmental appreciation, representing a positive step towards the development of a GI.

The Public Policies stage identified that the performance of different entities, such as those mentioned above (Embrapa, Emater/RS, Sebrae, and the City Halls), which support the region's production chain, is an example of this collective organization. However, weaknesses were identified, such as the lack of specific public policies for family farming and insufficient investment in infrastructure, which represent significant obstacles to the development of the local productive arrangement. Institutional Governance, by fostering collective organization and

existing partnerships, enables the effective structuring of public policies to help overcome producers' challenges.

Two interviews were conducted, based on the script developed and presented in Table 1, directed to the Embrapa specialist and the representative of Cooafan. The script elements were elaborated and structured into thematic blocks derived from the stages of the Virtuous Circle model, adapted to the specificities of each actor. Interviews are conducted via two digital videoconferencing platforms: Microsoft Teams and WhatsApp. The conduct of meetings across different digital platforms demonstrates the process of adapting communications to the different interaction contexts of the actors. The first meeting, held with a specialist from Embrapa, was conducted via Microsoft Teams, enabling it to be held in an environment with technological infrastructure and resources that ensured proper, systematic recording of information. The second meeting, with the representative of Cooafan, held via WhatsApp, proved more appropriate due to its agility and practicality, enabling a brief, direct follow-up process, albeit limited in terms of formalities and collaborative functionality compared to other digital platforms. Complementary documentary sources included data from IBGE and MAPA, as well as institutional reports and publications on Geographical Indications and agricultural chains in Southern Brazil, used to contextualize and reinforce the notoriety of the onion from São José do Norte.

Resolution No. 510, of April 7, 2016, exempts the submission to the ethics committee in research carried out in the Human and Social Sciences, whose objective is related to the theoretical deepening of emerging, spontaneous, and contingent situations in professional practice, as long as they do not involve the revelation of data capable of identifying the participating subjects. In this sense, the legal provision aims to ensure the freedom of scientific investigation, while preserving the integrity and privacy of those involved, and aligning with ethical and methodological principles that guide scientific research. Thus, the interviews sought to capture perceptions, experiences, and symbolic values associated with onions, as outlined in the script presented in Table 1.

Table 1 – Results of the Interviews: Summary of Participants' Answers.

Elements of the interview script		**Results - Topics provided by the Interviewees**	
Topics	**Subtopics**	**Interviewee1**	**Interviewee2**
1. Identification of Production and Territory	**1.1 Production history and time**	The onion of São José do Norte has been cultivated for more than 26 years, initially by small family farmers who formed a cooperative to reduce intermediaries' interference.	The cooperative was founded to prevent the exploitation of intermediaries and create a fairer market. Onion cultivation is traditional and has been maintained for generations.
	1.2 Characteristics of Onion	The onion has a distinctive spiciness, thick skin, and unique texture, attributed to its coastal environment, with sandy soils, high humidity, and sea winds.	The cultivation is done with family labor and techniques passed down from generation to generation, ensuring a distinct flavor and quality while respecting local

			knowledge.
	1.3 Geographical Indication and Trademark of Origin	The onion has the potential to obtain a GI, but there is a lack of technical studies that prove its uniqueness.	Recognition of local quality and taste through a GI could boost the region, but it depends on greater institutional support.
2. Social Organization and Governance	**2.1 Cooperatives, Associations, and Producer Groups**	The cooperative, with more than 128 members, is focused on the production and marketing of onions and other products, with a commitment to sustainability and improving members' living conditions.	The cooperative started with small family farmers and grew, including more women and young people along the way, thereby promoting a cooperative model.
	2.2 Participation and Collective Decisions	Decisions are made democratically, with the active participation of all cooperative members, strengthening the sense of belonging and involvement in the activities.	Participation in fairs and collective management has been key to the cooperative's success, with actions organized cooperatively and democratically.
	2.3 Union between Producers and Support of Organizations	The union among producers strengthened the cooperative, with support from Emater and public policies that helped keep it active.	Emater/RS's support has been fundamental, but it is limited. The cooperative also has occasional support from the city hall in terms of machinery.
3. Market and Valuation	**3.1 Marketing and Price**	Onions are sold in the local market, with little export, and prices are still dependent on regional competition.	The cooperative diversified production to meet local demand, such as for school meals, and participated in fairs, which increased onions' visibility.
	3.2 Profitability and Market Potential with IG	The GI may value onions in the market, but there are still no studies that show a premium price or export potential.	The GI could open new markets and strengthen the product, valuing the onion of São José do Norte.
	3.3 Difficulties in Commercialization	The cooperative faces challenges due to bureaucratic obstacles and the lack of a larger market.	Diversification has helped secure sales, but the local market is small and public contracts are lagging.
4. Sustainability and Local Resources	**4.1 Challenges in Production**	Weather and extreme events, such as drought and heavy rainfall, affect production, and many producers diversify their crops to reduce risks.	Production faces climate challenges, but diversification with Emater's support has been advantageous in mitigating these risks.
	4.2 Natural Resources and Sustainability	Sandy soil and high humidity are natural factors that contribute to onion flavor, but sustainability depends on proper management.	Preserving traditional cultivation practices is seen as key to maintaining sustainable production while respecting the environment.
	4.3 Future of Production	Onion production can expand with the introduction of technologies, but it depends on more studies and institutional support to ensure quality.	The cooperative seeks innovation and strengthening, but the continuity of cultivation depends on adapting to climate challenges and preserving family practices.
5. Institutional Support and Public Policies	**5.1 Technical Assistance and Government Support**	Institutional support is limited, with occasional technical assistance from Emater and some municipal resources.	The support is sporadic and consists of some agreements with the city hall and basic technical assistance.
	5.2 Willingness to Participate in Courses	There is interest in participating in courses, especially if focused on more advanced cultivation technologies and cooperative	The cooperative is open to courses that support the qualification and improvement of processes, always aiming for

		management.	innovation and sustainability.

Source: Prepared by the authors (2025).

It is noteworthy that attributes related to the onion in the region, such as uniformity, thick skin, pungency, and post-harvest conservation potential, were identified from the interviews. However, given the exploratory nature of the research, the attributes should be understood as preliminary indications observed in the context of the research and need to be validated through specific technical, laboratory, and sensory analyses.

The perceptions presented by the interviewees indicate that there is a way to avoid tensions between the adoption of technologies aimed at the expansion and modernization of production (E1) and the preservation of traditional practices associated with regional family farming (E2), pointed out by the interviewees, which lies in the need for more in-depth studies and in the willingness to carry out qualification courses. Thus, this aspect can represent a recurrent challenge in processes related to GIs, in which territorial valorization often requires a balance between technical innovation, productive standardization, and maintenance of cultural and traditional elements linked to local know-how. In this context, future recognition of the regional onion as a GI would depend on the establishment of governance mechanisms capable of aligning technological advances with the preservation of productive practices considered to be the territory's identity.

5.1.Notability

The research adopted based on official sources and contemporary publications, which enabled both the agricultural contextualization within the state's scenario and the historical consolidation of the municipality's productive tradition. Among the results of the research, the institutional records of the Foundation of Economics and Statistics (FEE) of the Government of the State of Rio Grande do Sul, dated 1990, cover the agricultural activity (of inter-regional performance) from 1939 to 1980. The document points to the region of São José do Norte as one of the main onion producers in the state, with approximately four-fifths of the state's production over the period. Revealing the preponderance in the consolidation of the onion production chain and demonstrating the historical legacy for the regional and economic development of RS. In addition, documentary, historical, and contemporary records demonstrate the notoriety and continuity of the onion tradition of São José do Norte as a cultural identity mark of the region's production chain (Conceição *et al.*, 1990; Dalmazo; Heuser, 2004).

According to the information in the document of the National Information Service – Central Agency (SNI), No. 044058 84, Information No. 046/51/AC/79, of July 17, 1979, on the subject "Flow of Onion Production in Rio Grande do Sul", they show the relevance of the region of São

José do Norte as a historical center of onion cultivation. The region is responsible for a significant share of RS production, accounting for an estimated 90 thousand tons in a national production scenario of approximately 500 thousand tons. Significant obstacles in the logistics process (production flow), the absence of public policies, and the precariousness of the infrastructure resulted in significant production losses. However, despite these challenges, the production of São José do Norte consolidated the region as a reference in the agricultural sector of Rio Grande do Sul.

Currently, the historical relevance remains, as institutional publications of the Municipality of São José do Norte and media content reproduced from various sources (such as Globoplay, G1, SBT Agro, Rio Grande Rural, among others) highlight the Opening of the Onion Harvest. Incorporated into the region's official agricultural calendar, the event represents the continuous tradition of decades of onion cultivation in São José do Norte. In addition to highlighting the continuous practice and appreciation of the harvest, which brings together producers, representatives of the agricultural sector, and public institutions, specific attributes that distinguish the local onion stand out, such as the production cycle associated with traditional management practices, the adaptation to the coastal environment, and the consolidated reputation for the uniformity of the bulbs. These elements highlight the differential and reinforce the historical notoriety of the production chain, supporting the claim for the GI and reaffirming the cultural and territorial identity of São José do Norte (Globo, 2017; RBS, 2013; RGR, 2021; SBT, 2023; SNI, 1979).

The notoriety of the onion production chain in São José do Norte was verified through research of institutional records, documents, and media content previously presented. These include historical data from FEE (Dalmazo; Heuser, 2004), official documents of the SNI (1979), and reports published on various audiovisual and journalistic platforms that highlight the region's historical and socioeconomic relevance. The data obtained revealed that cultivating northern onions, in addition to maintaining the local economy, also contributes to community cohesion and cultural identity. It is a process built continuously and repeatedly over decades and in different historical and social contexts.

5.2. The virtuous circle for the onion of São José do Norte

The region of São José do Norte has a strong tradition of onion production, attributed to Portuguese immigration, with more than 200 years of history. Embrapa has been working to support the development of technologies for agriculture, agroecological research, and the recognition of the onion produced in the region. According to Interviewee 1 (E1), linked to Embrapa, discussions about the potential recognition of regional onions as GIs have also gained

greater relevance due to movements and claims aimed at valorizing agricultural products in other producing regions of the country, such as Santa Catarina. In this context, the reference to the state of Santa Catarina is not related to the use of the same varieties or production systems, but to the expansion of the debate on strategies for territorial valorization and differentiation of agri-food products in the regional and national scenario.

However, the priority initially addressed by local farmers was to preserve history and identity rather than to achieve immediate commercial appreciation. The region has onion production characteristics marked by techniques adapted to the coastal environment, including cultivation in raised beds and the use of native cultivars, which give the onion unique traits, such as a differentiated flavor and thick skin. Even so, the commercialization process is predominantly local and dependent on intermediaries, which presents challenges due to the lack of technological and institutional support. The GI, in this regard, would represent an opportunity for the economic and cultural development of the region, reinforcing the identity of local production.

Founded more than 26 years ago, the Cooperative of Family Farmers of São José do Norte (Cooafan) has been fundamental for small producers in the region. According to Interviewee 2 (E2), president of Cooafan, the cooperative arose from an effort to reduce dependence on intermediaries and enable access to new markets, such as the capital of Rio Grande do Sul, Porto Alegre. Over the years, Cooafan has overcome financial and structural difficulties. It had the support of entities such as Emater/RS, supported by public policies. The interviewee, linked to the cooperative, also has a direct relationship with local family farming, an aspect that contributed to understanding the traditional practices associated with onion cultivation in the territory studied.

Currently, with approximately 130 members, a growing number of women and young people, the cooperative has sought to diversify its activities beyond onions, reaching the production of beans and vegetables. Even though onion production remains the cooperative members' main activity, market challenges and climatic factors have prompted diversification of production in the region. Participation in fairs and sales to consumers has proven a strategy that has helped the cooperative consolidate its presence in the local market.

Although the cooperative analyzed represents an important actor linked to the regional onion production chain, it is recognized that the productive dynamics of the region are not limited exclusively to its performance, but also involve other producers, forms of commercialization, and agents related to the local production system. However, given the exploratory nature of the research and the methodological delimitation adopted, the study focused on the initially selected institutional actors.

As highlighted by E1, Embrapa has been a strategic partner in the development of cultivars adapted to the local climate and in the strengthening of the onion production chain, especially in

preserving native seeds. Although the cooperative and small producers face difficulties, such as the scarcity of public policies aimed at family farming, the recognition of a GI would provide a significant boost to the region. The cooperative performance of entities such as Embrapa, Emater/RS, Sebrae, and the City of São José do Norte is considered positive and essential for consolidating and strengthening local identity and the economy. According to E2, institutional support and recognition of a GI could not only improve the dissemination of products but also project them to national and international markets, consolidating the agricultural sector in the region.

5.3 Future perspectives on the GI of onions and São José do Norte

According to the research results and interview data, there was significant potential for formal recognition of GI for onions from the region of São José do Norte. However, this study infers that the recognition of GI for the region depends on the adoption of strategic actions and the development of public policies directed to the region, with the aim of strengthening production, social organization, and territorial valorization. From a technical-scientific perspective, it is necessary to conduct comparative studies and laboratory analyses to assess the physicochemical, genetic, sensory, and onion differences of São José Do Norte, thereby identifying the attributes that distinguish it from varieties grown in other locations. However, the information obtained during the study reveals that consumers and merchants in the region recognize the onion from São José do Norte for its sweeter flavor, the uniformity of bulbs, and its good conservation capacity, aspects that contribute to the notoriety of the region(Attalea, 2022; NotíciasAgrícolas, 2022; Zabaleta *et al.*, 2007)

A new research front involves analyzing public policies to stimulate production, commercialization, and processing along the production chain, with a view to expanding presence in markets with greater economic expressiveness. Stands out that the formal recognition of a GI for the region can, over time, become an instrument of economic and social valorization in the promotion of tourist and gastronomic experiences. Regarding the transmission of traditional know-how, the importance of continuous agricultural activity as a strategy for retaining young people in the region and preserving traditional onion cultivation practices is highlighted.

In the context of the requirements for GI recognition, the study identified, in a preliminary way, elements associated with the regional reputation of the onion and the presence of production practices linked to the territory, as well as indications of institutional articulation among local actors. However, complementary steps are still necessary for the eventual submission of the application to the BPTO, especially concerning the consolidation of the territorial delimitation, preparation of a technical specification booklet, definition of control and governance mechanisms,

institution of a representative entity requesting and deepening of the technical evidence related to the link between product and territory. In the event of a possible request for DO, studies demonstrating a causal relationship between the product's characteristics and the region's natural and human factors would also be necessary.

6. Final considerations

Given the empirical basis of the research, composed of two interviewees with institutional roles in the regional onion production chain, the results should be understood as preliminary exploratory findings on the potential for recognition of the product as a GI. Seeking to complement the information obtained in the interviews, secondary sources were also considered, including reports, institutional publications, and media content related to onion production in the region studied, especially regarding the territorial perception, notoriety, and regional identity of the product.

Based on the results, it is possible to identify the potential for the development of a GI for onion cultivation in São José do Norte. The region's production chain presents a set of attributes that support this perspective, notably through the valorization of the territory, the cultural dimension of traditional management practices, and farmers' technical mastery. Thus, the production chain of São José do Norte is justified as a PI by the strong historical and sociocultural link established between the territory and the product. In which the productive activity has developed over decades, recognized and sustained by the traditional knowledge of the producers, as well as by the public recognition of the region in onion production.

The configuration of these elements forms an intangible heritage linked to the territory, built continuously, whose notoriety enables its recognition as IP. In this sense, they contribute to the configuration of a specific territorial identity, whose potential to consolidate a GI would transcend mere legal formality, constituting a historical recognition of onion production on the coast of Rio Grande do Sul. One of the limitations of this study is the limited number of interviewees, which contributed to a reduction in the scope and analytical scope. Regarding future investigations, expanding the dialogue with producers in the region and conducting a detailed survey of the production chain will help identify the main actors and the established dynamics.

References

ATTALEA. **Cebola BRS Prima: variedade com maior durabilidade pós-colheita**. [*S. l.*], 2022. Disponível em: https://revistadeagronegocios.com.br/brs-prima-pesquisa-desenvolve-variedade-de-cebola-com-maior-durabilidade-pos-colheita/. Acesso em: 21 nov. 2025.

BAGRI, Priyanka. AGRICULTURAL INNOVATION: THE IMPACT OF MODERN TECHNOLOGIES. **ShodhKosh: Journal of Visual and Performing Arts**, [*s. l.*], vol. 5, nº 5, p. 1102-1105-1102–1105, 2024. Disponível em: https://www.granthaalayahpublication.org/Arts-Journal/ShodhKosh/article/view/2749. Acesso em: 5 nov. 2025.

BRASIL. DECRETO No 1.355, DE 30 DE DEZEMBRO DE 1994. **Presidência da República Secretaria-Geral Subchefia para Assuntos Jurídicos**: 1994. Disponível em: https://www.planalto.gov.br/ccivil_03/_ato2015-2018/2018/decreto/d9289.htm. Acesso em: 14 nov. 2025.

BRASIL. Decreto nº 9.289, de 21 de fevereiro de 2018 – Acordo sobre Aspectos dos Direitos de Propriedade Intelectual Relacionados ao Comércio – Acordo TRIPS ou ADPIC. **Presidência da República Secretaria-Geral Subchefia para Assuntos Jurídicos**: 2018. Disponível em: https://www.gov.br/turismo/pt-br/secretaria-especial-da-cultura/assuntos/direitos-autorais/legislacao-de-direitos-autorais/pdfs/internacional/acordodireitosautoraiscomercio-trips.pdf. Acesso em: 9 nov. 2025.

BRASIL. LEI Nº 9.279, DE 14 DE MAIO DE 1996 - Regula direitos e obrigações relativos à propriedade industrial. **Presidência da República Secretaria-Geral Subchefia para Assuntos Jurídicos**: 1996. Disponível em: https://www.planalto.gov.br/ccivil_03/leis/l9279.htm. Acesso em: 5 nov. 2025.

CALDAS, Alcides dos Santos; ARAÚJO, Cristiano Cassiano de; COURY, Rafael de Lira Mansur. AS INDICAÇÕES GEOGRÁFICAS (IGS) COMO ESTRATÉGIA DE DESENVOLVIMENTO TERRITORIAL: DESAFIOS E POTENCIALIDADES NO DISTRITO DE MARAGOGIPINHO, ARATUÍPE, BA. **RDE - Revista de Desenvolvimento Econômico**, [*s. l.*], vol. 1, nº 39, p. 81, 2017. Disponível em: https://revistas.unifacs.br/index.php/rde/issue/view/280. Acesso em: 6 nov. 2025.

CARON, Patrick. *et al*. **Des territoires vivants pour transformer le monde**. [*S. l.*]: Éditions Quæ, 2017.

CONCEIÇÃO, Octavio Augusto *et al.* Uma Trajetória Regional no Contexto da Crise Brasileira Tomo 1 - A CRISE DOS ANOS 80 E O DESEMPENHO DA ECONOMIA GAÚCHA - A PROBLEMÁTICA REGIONAL E URBANA. [*s. l.*], 1990. Disponível em: Acesso em: 7 nov. 2025.

CORREA, I. V. *et al.* Caracterização do Sistema de Produção Familiar de Cebola nos Municípios de São José do Norte, Tavares e Mostardas - RS. [*s. l.*], 2019. Disponível em: http://www.infoteca.cnptia.embrapa.br/handle/doc/747142. Acesso em: 18 out. 2025.

D´ALEXANDRIA, Marcel Azevedo B. O Turismo Nas Indicações Geogeráficas: A Potencialidade Do Turismo De Experiência Na Denominação De Origem Vale Dos Vinhedos. **Cadernos de Prospecção**, [*s. l.*], vol. 8, nº 2, p. 394–404, 2015. Disponível em: http://www.portalseer.ufba.br/index.php/nit/article/view/12174/pdf_117.

DALMAZO, Renato Antonio; HEUSER, Siegfried Emanuel. As relações de comércio do Rio Grande do Sul — do século XIX a 1930. **Secretaria Da Coordenação E Planejamento Fundação De Economia E Estatística As Relações De Comércio Do Rio Grande**, [*s. l.*], 2004. Disponível em: www.fee.rs.gov.br. Acesso em: 8 nov. 2025.

EMBRAPA, Empresa Brasileira de Pesquisa Agropecuária. **Sistemas de Produção Cultivo da cebola**. 21 ed.ed. Petrolina: EMBRAPA, 2025-. ISSN 1807-0027. Disponível em: https://www.embrapa.br/semiarido. Acesso em: 18 out. 2025.

FAO. **Food and Agriculture Organization of the United Nations (FAO)**. [*S. l.*], 2023. Disponível em: https://www.fao.org/faostat/en/#rankings/countries_by_commodity. Acesso em: 28 out. 2025.

FAO. **Food and Agriculture Organization of the United Nations (FAO) - The origin-linked quality virtuous circle**. [*S. l.*], 2025. Disponível em: https://www.fao.org/fileadmin/user_upload/foodquality/fichefiles/en/c1.pdf. Acesso em: 6 nov. 2025.

FREITAS, Simone Santos de; BARBALHO, Célia Regina Simonetti. INDICAÇÃO GEOGRÁFICA: elementos para avaliação pós concessão. *In*: INDICAÇÃO GEOGRÁFICA E TECNOLOGIAS SOCIAIS NO BRASIL. 2023. ed. Palmas, TO: Gilson Pôrto Jr, 2023. p. 57–92. Disponível em: Acesso em: 6 nov. 2025.

GLOBO. **Vídeo: Aberta a colheita da cebola em São José do Norte | Vídeos - Bom Dia Rio Grande | G1**. [*S. l.*], 2017. Disponível em: https://g1.globo.com/rs/rio-grande-do-sul/videos-bom-dia-rio-grande/video/aberta-a-colheita-da-cebola-em-sao-jose-do-norte-6230610.ghtml. Acesso em: 8 nov. 2025.

IBGE. **IBGE | Cidades@ | Rio Grande do Sul | São José do Norte | História & Fotos**. [*S. l.*], 2025. Disponível em: https://cidades.ibge.gov.br/brasil/rs/sao-jose-do-norte/historico. Acesso em: 21 nov. 2025.

INPI. **Manual de Indicações Geográficas**. [*S. l.*], 2022. Disponível em: https://manualdeig.inpi.gov.br/projects/manual-de-indicacoes-geograficas/wiki. Acesso em: 8 nov. 2025.

KAUR, Simranjeet *et al.* Traditional uses, phytochemistry and pharmacology of allium cepa L. **IP International Journal of Comprehensive and Advanced Pharmacology**, [*s. l.*], vol. 8, nº 4, p. 237–244, 2023. Disponível em: https://ijcap.in/article-details/20603. Acesso em: 23 out. 2025.

LEE, Eun Jin; PATIL, Bhimanagouda S; YOO, Kil Sun. Antioxidants of 15 onions with white, yellow, and red colors and their relationship with pungency, anthocyanin, and quercetin. [*s. l.*], 2015. Disponível em: http://dx.doi.org/10.1016/j.lwt.2015.03.028. Acesso em: 24 out. 2025.

LEITE, Daniela Lopes *et al.* **Práticas de Manejo Recomendadas para a Produção Ecológica Certificada de Bulbos e Sementes de Cebola 'BRS Prima' no Rio Grande do Sul** . [*S. l.*], 2021. Disponível em: https://www.infoteca.cnptia.embrapa.br/infoteca/bitstream/doc/1136858/1/CIRCULAR-224.pdf. Acesso em: 4 nov. 2025.

LIMA, Daniela Coelho *et al.* Diagnóstico do potencial de indicação geográfica do café da Chapada Diamantina-Bahia sob a ótica da metodologia do SEBRAE. **Revista de Gestão e Secretariado**, [*s. l.*], vol. 14, nº 10, p. 18549–18564, 2023. Disponível em: https://ojs.revistagesec.org.br/secretariado/article/view/3067. Acesso em: 18 nov. 2025.

MAHAJAN, V *et al.* Onion (Allium cepa L.): Breeding for quality traits and export. **Vegetable Science**, Belo Horizonte, vol. 48, nº 02, p. 123–135, 2021. Disponível em: https://isvsvegsci.in/index.php/vegetable/article/view/83. Acesso em: 10 nov. 2025.

NASCIMENTO, Jaqueline Silva; NUNES, Gilvanda Silva; BANDEIRA, Maria da Glória Almeida. A Importância de uma Indicação Geográfica no Desenvolvimento do Turismo de uma Região. **Revista Gestão, Inovação e Tecnologia**, [*s. l.*], vol. 2, nº 4, p. 365–377, 2012. Disponível em: http://www.revistageintec.net/portal/index.php/revista/article/view/54. Acesso em: 20 jun. 2025.

NOTÍCIASAGRÍCOLAS. **Pesquisa desenvolve variedade de cebola com maior durabilidade pós-colheita - Notícias Agrícolas**. [*S. l.*], 2022. Disponível em: https://www.noticiasagricolas.com.br/noticias/hortifruti/318962-pesquisa-desenvolve-variedade-de-cebola-com-maior-durabilidade-pos-colheita.html. Acesso em: 21 nov. 2025.

OSORIO, Valentina. Calidad de café: identifique sus componentes para su gestión. **Memorias Seminario Científico Cenicafé**, [*s. l.*], vol. 71, nº 1, p. e71106, 2022.

PALHARES, J. C. P.; GEBLER, L. **Gestão Ambiental na Agropecuária**. Brasília, DF: Embrapa Informação Tecnológica, 2014. Disponível em: https://www.alice.cnptia.embrapa.br/alice/handle/doc/989020. Acesso em: 24 out. 2025.

PIRES, Maria Antônia D. R.; COLETTO, Camilla; CALLEGARO, Daniela. **Inovação e Empreendedorismo no Agronegócio**. Porto Alegre: [*s. d.*], 2020.

PRIYA, N Krishna *et al.* Impact of Extension Services on Knowledge Enhancement and Adoption of Modern Onion Farming Techniques: A Review. **Journal of Scientific Research and Reports**, [*s. l.*], vol. 31, nº 9, p. 183–201, 2025. Disponível em: https://journaljsrr.com/index.php/JSRR/article/view/3482. Acesso em: 21 out. 2025.

RBS. **RBS Notícias | Colheita da cebola é aberta oficialmente em São José do Norte, RS | Globoplay**. [*S. l.*], 2013. Disponível em: https://globoplay.globo.com/v/2992726/. Acesso em: 8 nov. 2025.

RGR. **Abertura da colheita da cebola em São José do Norte - Rio Grande Rural - YouTube**. [*S. l.*], 2021. Disponível em: https://www.youtube.com/watch?v=7xsOeX9Ns7A. Acesso em: 8 nov. 2025.

SAGAR, Narashans Alok *et al.* Onion (Allium cepa L.) bioactives: Chemistry, pharmacotherapeutic functions, and industrial applications. **Food Frontiers**, [*s. l.*], vol. 3, nº 3, p. 380–412, 2022. Disponível em: https://iadns.onlinelibrary.wiley.com/doi/10.1002/fft2.135. Acesso em: 24 out. 2025.

SBT. **SBT Agro 26/12/23: Colheita de uva está a todo vapor no final do ano - YouTube**. [*S. l.*], 2023. Disponível em: https://www.youtube.com/watch?v=DsLeb_iEoZM. Acesso em: 8 nov. 2025.

SEBRAE. Perfil das Cidades Gaúchas - São José do Norte. **SEBRAE**, [*s. l.*], p. 2–21, 2020. Disponível em: www.sebraers.com.br. Acesso em: 18 out. 2025.

SIDRA. **Sistema IBGE de Recuperação Automática - SIDRA**. [*S. l.*], 2025. Disponível em: https://sidra.ibge.gov.br/home/pimpfbr/brasil. Acesso em: 4 nov. 2025.

SILVA, André Almeida; RODRIGUES, Bela; SILVA, Gabriel Francisco da. BREVE PANORAMA DAS INDICAÇÕES GEOGRÁFICAS DO NORDESTE BRASILEIRO E REFLEXÕES SOBRE OS NEGÓCIOS LOCAIS/ Brief overview of geographical indications of northeast Brazil and reflections on local business. **Informe GEPEC**, [*s. l.*], vol. 26, nº 1, p. 238–256, 2022. Disponível em: https://e-revista.unioeste.br/index.php/gepec/article/view/28146. Acesso em: 9 nov. 2025.

SNI. **Serviço Nacional de Informações (SNI)**. [*S. l.*], 1979. Disponível em: http://imagem.sian.an.gov.br/acervo/derivadas/BR_DFANBSB_V8/MIC/GNC/AAA/84044058/BR_DFANBSB_V8_MIC_GNC_AAA_84044058_d0001de0001.pdf. Acesso em: 8 nov. 2025.

VAN, Doan Vu Thanh. Geographical Indications in Vietnam: Protecting Cultural Heritage and Promoting Economic Growth. **Journal of Education, Humanities and Social Sciences**, [*s. l.*], vol. 42, p. 934–944, 2024a. Disponível em: https://drpress.org/ojs/index.php/EHSS/article/view/28383. Acesso em: 5 nov. 2025.

VAN, Doan Vu Thanh. Geographical Indications in Vietnam: Protecting Cultural Heritage and Promoting Economic Growth. **Journal of Education, Humanities and Social Sciences**, [*s. l.*], vol. 42, p. 934–944, 2024b. Disponível em: https://drpress.org/ojs/index.php/EHSS/article/view/28383. Acesso em: 5 nov. 2025.

VILELA, Nirlene J. *et al*. Desafios e oportunidades para o agronegócio da cebola no Brasil. **Horticultura Brasileira**, [*s. l.*], vol. 23, nº 4, p. 1029–1033, 2005.

ZABALETA, J P *et al.* **AVALIAÇÃO DE CULTIVARES PARA PRODUÇÃO DE CEBOLA**

ORGÂNICA PARA CONSERVA EM SÃO JOSÉ DO NORTE-RS-BRASIL. [*S. l.*]: [*s. d.*], 2007. Disponível em: https://revista.aba-agroecologia.org.br/cad/article/download/2154/1980/8347. Acesso em: 21 nov. 2025.

ZHAO, Xin-Xin *et al*. Recent Advances in Bioactive Compounds, Health Functions, and Safety Concerns of Onion (Allium cepa L.). **Frontiers in Nutrition**, [*s. l.*], vol. 8, 2021. Disponível em: https://www.frontiersin.org/articles/10.3389/fnut.2021.669805/full. Acesso em: 20 nov. 2025.