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NOTES ON ONION PRODUCTION IN THE NETHERLANDS AND EXPORTS TO BRAZIL IN THE POST-2000 PERIOD

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ABSTRACT

Onions, originally from Asia, are one of the main vegetables consumed globally, with world production of 110.61 million tons in 2022, led by India and China. The Netherlands stands out as the largest exporter, with 31.51% of world exports, tripling its production since 2000, thanks to advanced techniques and the port of Rotterdam. Brazil, the 15th producer, imports about 15% of its demand, with the Netherlands among the top five suppliers, benefiting from the low cost of transport. The research analyzes the dynamics of Dutch production and its exports to Brazil since 2000, using data from FAO and Comex/Stat. The objective is to understand how physical, biological and human factors drive this production chain.

Keywords: Onion production. Dutch exports.

INTRODUCTION

Originating in Asia, in the region of Pakistan and Iran, onions are one of the main vegetables consumed in the world, second only to potatoes and tomatoes, and have activities of socioeconomic and food relevance, being consumed mainly in natura (Almeida; Bastos, 2023).

In the world in 2022, world production reached 110.61 million tons, cultivated on 5.96 million hectares, under the leadership of India and China, which alone represent more than 50% of world production, with exports totaling 8.70% of production, with the Netherlands as the main exporter (Almeida; Bastos, 2023).

In 2022, the Netherlands accounted for 31.51% of total world exports, reaching 140 countries (FAO, 2025), from the port of Rotterdam, Europe's main port. To achieve these rates, the country jumped in cultivated area from 13,244 hectares in 2000 to 35,940 ha in 2022, occupying the twenty-second position, in relation to productivity it reached 47.34 t/ha, occupying the ninth position among producing countries, and total production jumped from 0.56 million t in 2000 to 1.46 million t in 2022, However, what proves the dynamism of Dutch production is the volume of exports, which totaled 1.69 million tons in 2000, since the

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country is also a major importer of onions.

Brazil, in 2022, was the fifteenth producer, with a production that represented 1.49% of world production, concentrated in eight Brazilian states, especially Santa Catarina, Bahia and Goiás, being insufficient to meet the demand of the domestic market, which required imports that in recent years have reached an average of 15%, around 0.2 million tons (Almeida; Espíndola, 2023).

To meet the demand, the country imports the vegetable, in 2020 there were 197.56 thousand tons, with Argentina being the main supplier with 155.36 thousand tons, at a cost of US$ 26.10 million, totaling 78%, followed by Chile with 11%, the Netherlands with 7.1%, Spain with 2.5%, and the rest of Peru, Belgium, the United Arab Emirates with 1.3% (Almeida; Espíndola, 2023).

Onion exports from the Netherlands to Brazil occur thanks to the low cost of maritime transport, boosted by the exports of Brazilian fruits to the port of Rotterdam, which when returning refrigerated containers, allows the return with Dutch onions at a low cost, transforming the country among the top five suppliers of onions to Brazil.

OBJECTIVE

Thus, the general objective of the research is to present the dynamics of onion production in the Netherlands and exports to Brazil from 2000 onwards, through the analysis of production data, exports, characterization of cultivated areas, production techniques and modes of production flow to the Brazilian market.

METHODOLOGY

The methodology used in the research was documentary research, by extracting official data obtained from the reports of the Food and Agriculture Organization of the United Nations (FAO), from the Official System for Extracting Statistics of the Brazilian Foreign Trade of Goods – Comex/Stat of the Ministry of Development of Industry, Commerce and Services, in the Association of Onion Producers of the Netherlands (Holland, 2025), based on the studies produced in the research of the thesis at PPGG – UFSC.

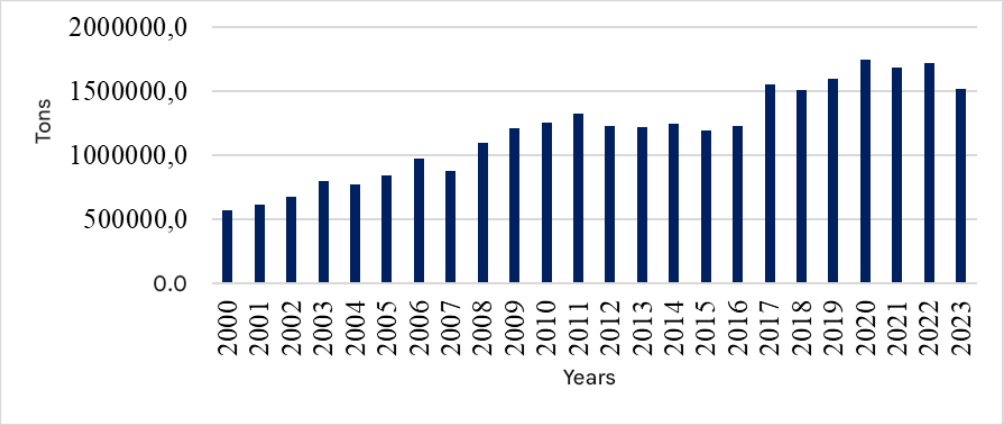
As a theoretical analysis, geographical combinations were used as a category of analysis, which can be divided into three major categories: those that result solely from the convergence of physical factors; those, already more complex, which are, at the same time, of a physical and biological order; the most complicated and therefore more interesting, which result from the joint interference of the physical elements; of biological elements and

human elements (Cholley, 1964).

THE DYNAMISM OF THE PRODUCTION AND MARKETING OF DRIED ONIONS IN THE NETHERLANDS

The Netherlands has tripled onion exports to the world since the 2000s, exports jumped from 0.57 million t in 2000 to 1.51 million t in 2023, consolidating itself as the world's largest exporter of the oleracaceae, as can be seen in figure 1.

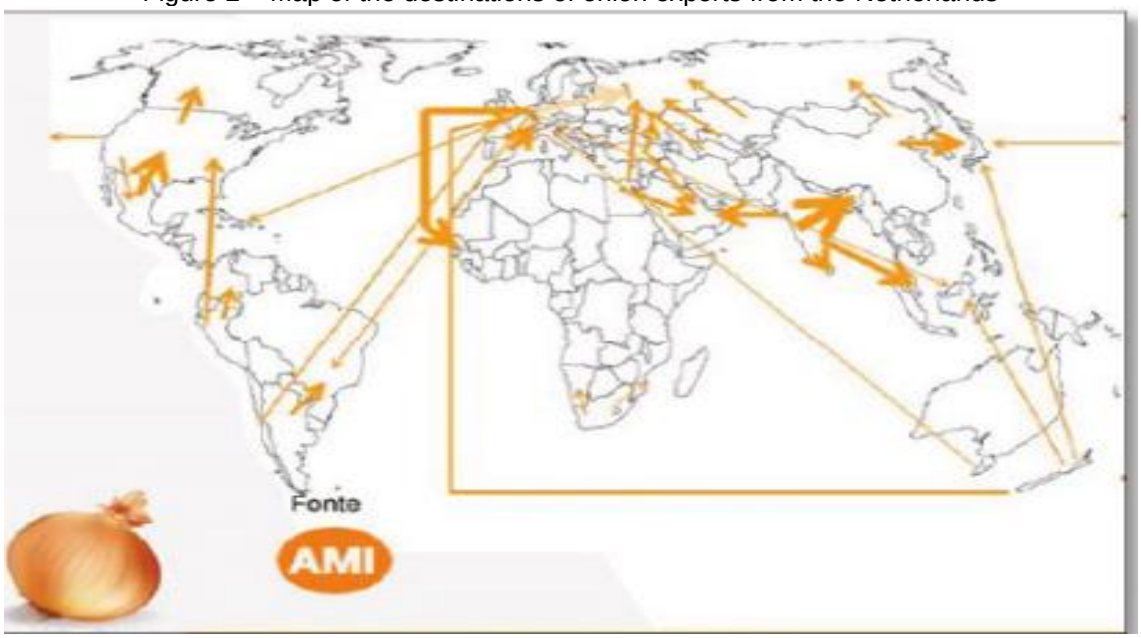
Figure 1 – World onion exports from the Netherlands in tonnes



As evidenced by Almeida and Espíndola, 2023, the production system in the Netherlands is based on seed quality, adoption of techniques to maintain healthy soils, consolidated mechanization, use of inputs in accordance with European Union standards, strong performance of the State, proving the performance of the Entrepreneurial State (Mazzucato, 2014), whether through agricultural insurance programs, quality control for consumer safety in order to serve the domestic and foreign markets, that is, committed to meeting the specified quality factors.

The actions developed jointly between the public and the private sector have transformed the country into the world's largest exporter, reaching 140 countries in 2022, as shown in figure 2, from the port of Rotterdam, located within a radius of 100 km from the producing regions, which demonstrates the dynamism of Dutch dried onion production (Almeida; Espíndola, 2023, p. 8), proving that the adoption of technological innovations (Vieira Filho, 2012, p. 11) allowed the consolidation of the Dutch onion production chain.

Figure 2 – Map of the destinations of onion exports from the Netherlands



Source: AMI. Prepared by Teixeira (2022).

Thus, the performance of the State can be proven by the strong performance of the Universities, such as Wagningen, which works on the onion genome sequencing project, in order to improve production techniques, reducing the use of inputs and increasing production, which made the Netherlands characterized by being one of the main producers of seeds not only for Europe, but for the United States, South America, Asia, and Australia (Scholten; Finkers, 2022), with emphasis on the strong performance in the market as the company Nunhens B.V.

Progress in the genetic sequencing of onions is difficult, because according to Scholten and Finkers, the current stage of research:

> In terms of genetics and genomics, the knowledge about the onion genome is scarce compared to the tomato. The tomato genome is fully sequenced, while little is known about the onion genome. This is due in part to the huge size of the onion genome (16 GB). Sequence information is extremely valuable for identifying genes associated with important traits, such as disease resistance, and for understanding the underlying mechanisms. The availability of the onion genome will accelerate onion breeding and lead to several innovations (2022).

It is important to emphasize that the performance of Dutch companies in Brazil can be evidenced by the registration of protection of onion cultivars in Brazil, as only the multinational company Nunhems B. V. from the Netherlands, a member of the Bayer group, without the direct participation of national companies, has registration, which represents 17% of the certifications, as can be proven in the table below.

PROTECTION CERTIFICATES OF ONION CULTIVARS OF THE DUTCH COMPANY NUNHEMS B.V. in 05/2023			
NAME	**Beginning**	**End**	**Enterprise**
Dulciana®	20/08/2018	20/08/2033	Nunhems B.V.
Sofire®	15/07/2019	15/07/2034	Nunhems B.V.

Source: MAPA, 2023 and adapted by the author.

From the commercialization of seeds in Brazil, the Dutch Bejo Sementes do Brasil Ltda, which has 25 cultivars and offers 9 varieties (Bejo, 2023), and Bayer and D&PL Brasil Ltda, owners of Nunhens B.V., which although with 56 registrations, in its portfolio, offers 7 cultivars, two of which through Seminis (Seminis, 2023).

Unlike in Brazil, where small production is largely responsible for production and companies for marketing, in the Netherlands, the actions of companies dominate the production, storage and marketing system, as an example of the second largest exporter in the country, the company Waterman Onions BV, which receives, dries, classifies, packs and ships 120 thousand tons of onions/year (Waterman, 2022), with a reduced number of employees and a predominance of machinery and equipment with high processing capacity.

Thus, like the Tolsma-Grisnich company, which innovates in the onion production chain, from the process of handling, storage, processing and packaging of agricultural products, with the processing of 70 tons of onion per hour, in a process that dries, cools, classifies and packs mechanically, controlled by computers, which allows the product to be stored in an average of nine months from the control of humidity and temperature, which facilitates the storage and especially the commercialization of onions when the value is viable, which allowed the country to trade with 140 countries, with international quality certifications, BRC Higher Level, Skel, QS, Global-Cap (Almeida; Espíndola, 2023, p. 9).

Throughout the Dutch onion production chain, labor is reduced to the operation of machinery and equipment, in relation to quality control it still remains in great demand, but the development of machines is already being implemented, such as the first in the world that performs the selection and is already implemented in the country, according to Tolsma – Grisnich, 2022. Thus, the adoption of modern techniques for the production and commercialization of oleracaceae will make the country highly technified, definitively consolidating the production chain of the Dutch onion, as one of the most modern in the world (Almeida; Espíndola, 2023, p. 10).

The experiences and success of the modernization of the Dutch onion production chain made it dynamic, which culminated in the country as the world's largest exporter of onions, since "the machine works not only faster, but even more perfectly than the manual

worker with his simple tools" (Kautsky, 1982, p. 72). with a cost to the producer of US$ 185.00 per ton, lower than in countries with low productivity per hectare (Almeida; Espíndola, 2022, p. 9).

ONION-PRODUCING REGIONS IN THE NETHERLANDS

According to the Dutch Onion Association (Holland, 2025), 6% of agricultural land in the country is used for vegetable cultivation, and in the last fifteen years, the cultivated area has increased by 50% reaching more than 30,000 hectares.

The fertile sea clay land regions of the delta areas of the southwest of the Netherlands, in the provinces of Zeeland and South Holland, account for 35% of national production, while the Northeast and South produce 40% and the North located in Friesland and Groningen the remainder.

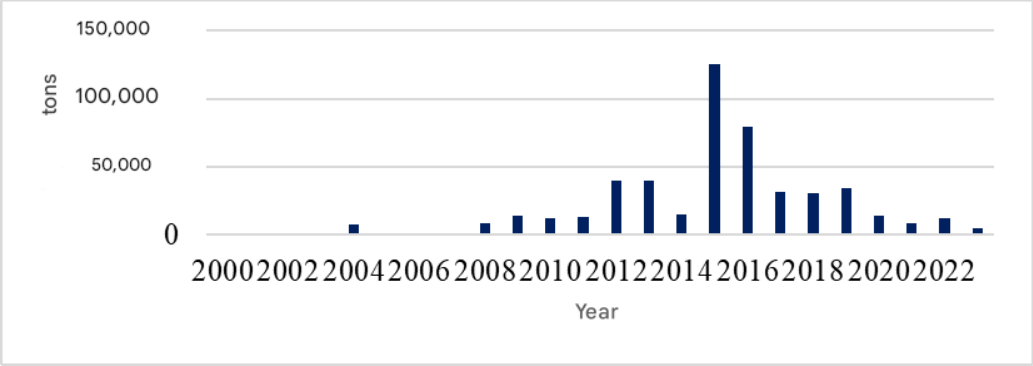
It is important to highlight that the clay soils of the sea are rich in calcium and the specialized techniques in production and harvesting have made the onion production chain, combined with access to three seaports, viable for world export (Holland, 2025).

ONION EXPORTS FROM THE NETHERLANDS TO BRAZIL

In figure 3, it is possible to follow the evolution of exports, comparing the quantities, which allows an analysis of the development of the onion production chain, capable of trading with a significant number of countries, because in addition to quality, storage techniques allow the Netherlands to trade with the appropriate price to maintain the activity in the country.

The largest exports of Dutch onions to Brazil were in the years 2015 and 2016, which were characterized by the lower supply of Argentine onions (Almeida; Bastos, 2025).

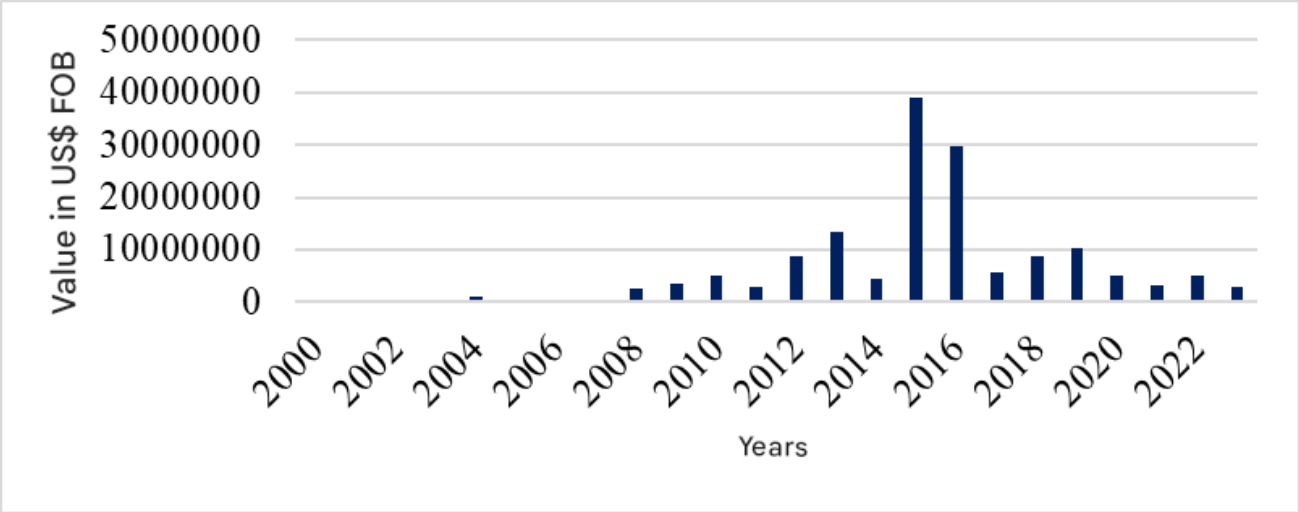
Figure 3 – Onion exports from the Netherlands to Brazil in tons



Source: COMEXSTAT, 2025. Prepared by the author.

As for the cost of the exported values, as shown in figure 4 it is possible to follow the evolution, which is strictly related to geographical combinations, affected by physical conditions: climate and biological: diseases, as well as human (Cholley, 1964), where it is possible to see that the years 2016 and 2017 allowed the Netherlands to meet the low demand from Argentina.

Figure 3 – Brazilian onion imports from the Netherlands – Total value in US$ FOB



Source: COMEX/STAT, 2024. Prepared by the author.

Given the possibility of the Netherlands to trade like the vast majority of countries, only when the trade is advantageous to producers, either through the open market given the edaphoclimatic conditions, proves the alternation of supply, such as the great decrease in the supply of Argentine onions to Brazil in the years 2015 and 2016.

FINAL CONSIDERATIONS

The modernization of Dutch agriculture, specifically the onion production chain, has allowed the country to become the world's largest exporter of the olerace, selling to 140 countries in recent years, and becoming one of the five main suppliers of onions to meet the Brazilian domestic market, which was evidenced in this research, which in addition to exports, the performance of Dutch companies in the Brazilian onion production chain, such as Nunhens B.V., stands out in the country.

This dynamic of onion exports from the Netherlands to Brazil, which is one of the five main suppliers of onions, demonstrates that the physical, biological and human geographical combinations of Cholley make a great difference in the adoption of modern technologies of production, storage, transport and commercialization, which allow a close

combination of industry and agriculture[2], evidencing that the adoption of modern techniques is essential for the maintenance of agricultural activity.

In other words, Brazil has numerous possibilities for improving the onion production chain, especially in agricultural mechanization at all stages of production, significant improvement in storage and marketing techniques, ensuring means to increase onion production on Brazilian soil, reducing costs, which will make it possible to meet domestic demand and perhaps insert the country in the list of exporters of this important spice vegetable.

[2] "High degree of interconnection between agriculture, industry and services, making it increasingly difficult to establish boundaries between them" (ESPÍNDOLA, 2018, p. 31).

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