







# Coastal Horticulture in Northeastern Australia

Global Networks and Regional Development

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#### SCOPING REPORT

### Coastal Horticulture in Northeastern Australia: Global Networks and Regional Development

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## Background

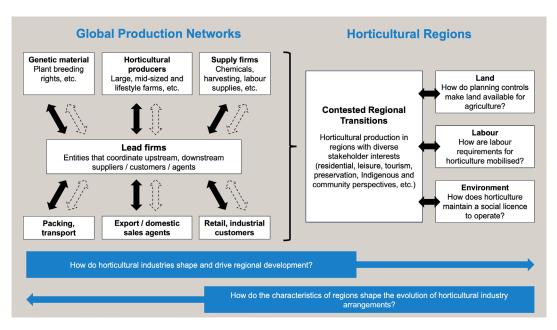
# Australian coastal horticulture: a changing landscape

Over the past two decades, Australian agriculture rapid transformation undergone restructuring, which is particularly evident in the evolution of coastal horticulture. Some areas traditionally used to produce broadacre crops, such as sugarcane, are now being repurposed for horticulture. In other contexts, horticulture has expanded to areas adjacent to residential zones, generating potential for land use conflict. These shifts have elevated the role of horticulture as a regional economic driver but also raised questions about its social license to operate. The fundamental aim of this research project is to understand these tensions, thereby providing industry and community stakeholders with insights that can help generate sustainable outcomes for the industry and host regions.

Central to this goal is an appreciation of the fact that the sector is embedded within **global networks**, including those providing foreign investment and finance, reliant in many cases on export markets, and highly dependent on overseas workers. This global integration has propelled Australia to become a key player in international horticulture. At the same time, international climate change commitments and increasing global food insecurity underscore the importance of ensuring that horticulture can contribute to thriving communities, sustainable and just food systems, and healthy ecologies into the future.

Our research focuses on horticulture in coastal Queensland and northern New South Wales. where processes of globalisation and industry growth occur within regional landscapes that are **multifunctional** – that is, where agricultural production occurs alongside a range of other land use values, such as providing a healthy living environment, cultural connection, and ecological value and recreation. The growth of horticulture also places pressure on the labour force and wider community wellbeing, as evolving sociocultural norms across Australia have further imposed requirements on the horticultural industry to align with sustainable practices. At the same time, lands used for agricultural production are now contested by various interests, such as housing, tourism, Indigenous recognition, and environmental protection. Together, these trends raise critical questions about resource allocation, land use planning, governance, resilience and social justice.

In this dynamic context, this research project delves into the multifaceted changes that have shaped the evolution of horticulture in coastal



**Figure 1.** The GPN-territory nexus as it relates to horticulture in Australia.



**Figure 2.** The Northeastern Coastal Strip of Australia **Source:** the authors, based on data from ABS (2021, 2024) and ABARES (2024). Map created using ArcGIS.

Australia. It explores the transformation of agricultural activities, the global networks in which the sector is embedded, the competition for land, labour and resources, and the imperative for industry to navigate the evolving social landscape to balance economic priorities with environmental and community considerations.

#### About the research project

This three-year research project is funded by the Australian Research Council and includes researchers from three Australian universities. The project seeks to understand the role of globally networked horticulture in processes of regional development. It examines how issues are being debated and addressed by diverse stakeholders who are located at the 'global production networkterritory nexus'. We use this term to capture the connection between international networks of food production, consumption, retail, trade, investment, lead firms, labour and regulation with the challenges facing multifunctional regions - environmental imperatives, competing land use demands, socialcultural dynamics, and sometimes contrasting visions of regional development (see Figure 1).

# Aims, methods and outcomes

The project will compare four regional case studies across two states from the Northeastern Coastal Strip (NECS) of Australia, covering seven

key horticultural crops (**Figure 2**). The NECS is not an official political demarcation but emerges as a cohesive entity in the horticultural landscape of Australia. Positioned east of the Great Dividing Range, with catchments flowing into the Great Barrier Reef and other sensitive natural environments, the NECS brings together coastal lifestyles and urban settlements with a long history of dynamic agricultural development. A humid tropical and sub-tropical climate with fertile river valleys establishes the NECS as a national hub for fruit, nuts and vegetable production.

The project combines an analysis of census, trade, land and industry data with in-person interviews to hear the voices of regional stakeholders. These methods will allow us to:

- Determine how regional economic, sociocultural and environmental dynamics influence the development of high-value horticulture in the NECS, often with global linkages.
- Generate outputs in the form of published research and presentations for industry, community and academic audiences, as well as policy recommendations.
- Produce new knowledge to inform recommendations for ensuring a sustainable and equitable future for these growing horticultural regions in Australia.



# Trends within coastal horticulture

In its first year, the project has met with multiple stakeholders in the NECS, including growers and horticultural businesses of various sizes, food processors, state governments, local councils, peak industry and natural resource management bodies, Indigenous organisations, advocacy groups, and community leaders. Interviews and meetings conducted with more than 70 participants led to the identification of the following interconnected trends that are shaping the future of coastal horticulture in the region. These trends represent areas of tension and contestation, and present both opportunities and challenges for the sustainable development of Australia's horticultural sector.

#### 1. Globalising horticultural networks

The horticultural sector of Australia has increasingly become part of the global production and distribution of food. Exports to foreign markets, as well as international trade of horticultural inputs, technology and intermediary goods and services, reliance on international labour, and international ownership of land and firms, all shape the evolution of horticulture in the NECS.

#### International consumer markets

The horticultural landscape of Australia has undergone a dramatic restructuring over recent decades, evolving to be more export-oriented, with a pronounced focus on Asian markets. In 2022, Australia exported over 3.5 billion US dollars worth of vegetables, fruits and nuts, mainly to China, Bangladesh,

#### **CASE STUDY**



#### Australian macadamia exports

Nut trees have gradually taken over landscapes once occupied by sub-tropical rainforest, sugar cane, and dairying pasture, as the production of macadamias, a nut indigenous to Australia, has expanded. Australia dominates the global production of macadamias, the only native Australian food crop traded internationally as a commercial product (AMS, 2024). Macadamia nuts have grown to be one of Australia's most valuable horticultural exports, with annual exports valued at over AU\$300 million (QGSO, 2024). As of December 2023, there were more than 700 macadamia growers in Australia, producing approximately 50,000 tonnes of macadamias per year (AMS, 2024). Approximately 70% of the Australian crop production is exported to more than 40 countries, with the main destinations being China, Vietnam, Japan, South Korea, and the USA (AMS, 2024; Hort Innovation, 2024).

Pakistan, India, and the UAE (OEC, 2024). The surge in exports has not only catalysed economic growth but also introduced an increased degree of complexity, as the sector navigates the intricacies of international trade dynamics. The sector is now part of global production networks, characterised by diverse consumer demands (e.g. for healthy and nutritious diets, sustainable foods and more value-added products), heightened exposure to international price and market volatility, and entanglement within global geopolitical dynamics.

#### Lead firms and international agribusiness

Horticultural production in the NECS occurs increasingly within the framework of global production networks orchestrated by lead firms. These entities can be Australian or foreign-owned companies. Their defining attribute is that they coordinate upstream and/or downstream agents, as illustrated in Figure 1. Lead firms are embedded in flows of global finance and investment, and in relationships with an array of international and national corporations through contracts (for seeds, fertilisers, agrochemicals, machinery and specialised equipment, genetics, or labour), cross-licensing, and data sharing. For horticultural sectors that are selling mainly in domestic markets, relations with industry peak bodies and supermarkets are key. For export-focused horticultural sectors, lead firms and industry peak bodies are required to engage with international trade agreements and intergovernmental food regulation policymaking. This presents both challenges and opportunities for horticulture. For example, where globalisation has required local industries to adapt their processes to meet international standards and expectations, growers and businesses must increasingly adhere to a myriad of global standards, protocols and benchmarks in order to retain market access. Some are voluntary (such as GlobalGAP internationally or Hort360 in Australia), while others are required by law (such as food safety standards and biosecurity protocols), and not all farmers are able to meet standards equally. Horticultural lead firms also increasingly position themselves as leaders in meeting international sustainability goals in the locations where they operate. For lead firms to ensure compliance with all of these requirements, they must become increasingly active in the upstream and downstream governance of supply chains.

#### **CASE STUDY**



#### Globally-networked production of berries in Australia

Only 3% of Australia's berries find their way to international markets (Hort Innovation, 2024). Yet, the growth of this commodity is deeply entangled in global production networks. The sector's financial strength is sustained by foreign connections, with intellectual property and branding often owned by global lead firms. Moreover, the labour force responsible for harvesting berries largely comprises individuals from overseas, facilitated by programs like Australia's Working Holiday Maker (WHM) program and the Pacific Australia Labour Mobility (PALM) scheme. Additionally, the Australian supermarket chains that distribute berries to local consumers are publicly listed and subject to global governance requirements. The berries case illustrates Australia's horticultural integration into complex global networks that go beyond direct exports.

#### 2. Multifunctionality of coastal regions

Growth of horticulture in the NECS has largely occurred in multifunctional regional landscapes, where consumption, conservation, and production are balanced with other social issues like health, employment, and culture. Agricultural lands face competing interests from housing and tourism, while shifting socio-cultural norms demand sustainable practices, prompting questions about equitable resource allocation, environmental governance and compliance, and decision-making, planning and social justice.

#### Tourism and housing in rural areas

Agricultural landscapes along the NECS are transforming into hubs for tourism and residential living. Formerly agrarian spaces are now home to tourist accommodations and residential developments, altering the socio-economic fabric of these regions and generating competition for land use. As farming gives way to alternative land uses, the balance between rural livelihoods and evolving economic landscapes is shaken, prompting a need for strategic planning to ensure a sustainable mix of farming and food production, emerging industries, and the need for more (affordable) housing.

#### Food and farming as cultural identity

Competition for land occurs against the backdrop of the socio-cultural importance of food and farming. Rural land in Australia transcends its productive role, embodying the heart of communities, cultural identity and belonging; albeit acknowledging that the history of regional development can also be fraught and contested. The landscape is more than just a farming resource - it serves as a foundation for homes and families; it holds collective memories and shared knowledge; it gives rise to distinct regional foodways, tastes and cultural food practices; and plays a crucial role in shaping the unique identity of the community. It holds Indigenous peoples' historical and ongoing connection/custodianship of land and food knowledge, as well as that of women, youth and diverse multicultural groups. Its significance extends beyond cultivation, embracing a multifunctional essence embedded in the lives and livelihoods of rural communities.

#### **CASE STUDY**



#### Bundaberg, the food bowl of Australia

Bundaberg, situated in Wide Bay, is commonly referred to as 'the food bowl of Australia', owing to its abundant fresh food production. Countless fruits and vegetables served across Australia and beyond originate from the region, which is one of the main producers of citrus, macadamias, chillies, avocados and sweet potatoes, among others. For many people in Bundaberg, farming of both horticultural crops and sugar is not merely a means of production; it is deeply embedded into the region's identity and history. Agriculture in Bundaberg is not just about growing crops; it is a reflection of the area's heritage and sense of self.

#### Environmental significance

The NECS is home to numerous rich and complex ecosystems, reflecting great natural beauty and globally significant biodiversity and conservation values. Furthermore, Indigenous relationships to Country as kin denote cultural obligations to care for, protect, enhance and regenerate environments in ways that respect the intrinsic value of nature. Cairns is the only place in Australia where two UNESCO World Heritage sites – the Great Barrier Reef (GBR) and the Wet Tropics rainforest – sit side by side, supporting thousands of marine and terrestrial species and playing a crucial role in climate regulation. GBR marine conservation zones extend south to Wide Bay Burnett, which also includes major river catchments and coastal national parks home to numerous rare and threatened flora and fauna. Tweed Heads occupies one of the largest natural remnant volcano calderas in the world and includes World Heritage Gondwana rainforest and other critical habitat. Along the coastal strip, 80% of bushland has high conservation status and sits outside of national parks. Coffs Harbour is one of the few places in eastern Australia where the Great Dividing Range connects to the coastal plain, existing adjacent to the Solitary Island marine park, presenting unique topography, geography and biodiversity. While addressing challenges associated with horticulture in multifunctional landscapes involves trade-offs, the wellbeing of the natural environment remains a fundamental priority. This gives rise to questions of environmental governance, justice, and decision-making at a regional scale, as well as questions about the value of regenerative farming and agroecology – the integration of production and conservation – at the farm scale.

#### 3. Farmland ownership transformations

A significant shift in land ownership dynamics is underway in parts of the NECS, marked by the acquisition of agricultural land by outside interests for different applications. This evolution prompts a comprehensive examination of the complex role of ownership patterns in shaping regional landscapes. It is also crucial to recognise that alongside 'new' landowners in horticultural regions, there remain significant ongoing Indigenous connections to and fights for traditional lands, waters, seas and skies that are integral to First Nations' economic, social and cultural foodways, predating colonisation.

#### Corporatisation and financialisation of land ownership

The traditional structure of agriculture, once dominated by family farming, is undergoing a widespread shift towards higher corporate involvement. Large-scale agricultural enterprises, often linked to institutional finance such as pension funds, investment banks and commodity traders, are consolidating agricultural land through foreign direct investment, with both productive and speculative drivers. Land purchases also increasingly go hand-in-hand with corporate ownership of other assets along the supply chain, such as agricultural inputs, infrastructure, water rights, processing, marketing and retail. As a consequence, the cultivation of horticultural crops has expanded, with financial actors increasingly determining productive outcomes. This includes a significant increase in the flow of investment capital from superannuation (pension) funds into the sector, and an overall more sophisticated use of debt and equity finance by family-owned farms. This financialisation of the horticultural sector reflects not only a structural change in the ownership of land, but also a dynamic reconfiguration of the socioeconomic fabric of agricultural regions. For example, decisions about institutional financing intersect with succession planning for farming families and decisions to expand, intensify or diversify, raising debates around the sector's future.

#### Lifestyle farming

Another trend related to farmland ownership is the increasing number of individuals from urban populations migrating to regional and rural areas. Often, these 'sea' or 'tree' changers embrace the appeal of rural landscapes and engage in farming, not necessarily for primary income, but as a lifestyle or hobby. This influx of urban dwellers into rural territories alters the historical dominance of larger-scale farms and introduces a different set of drivers and logics around land ownership. This also changes the social dynamics of regional communities, bringing renewed interest in farming, making wealth inequalities more visible, and highlighting tensions and opportunities arising from the increased mix of people with differing priorities.

#### **CASE STUDY**



#### Northern Rivers land ownership change over time

The expansion of macadamia cultivation in the high-amenity rural landscapes of the Northern Rivers, especially around Lismore, is inextricably connected to demand from lifestyle investors. These entrants typically have holdings of 10-15 hectares, allowing cultivation of 3,000 trees. This size of operation cannot economically sustain a household on its own, but lifestyle farmers have off-farm income or abilities to draw on savings to supplement on-farm income. Fluctuations in macadamia prices over time impact on these farmers in different ways. Some are able to ride out lower prices because of off-farm income. For others, reduced prices can undercut the economic viability of this lifestyle, and because households may not be wholly committed to farming, it encourages exit.

#### 4. Farm labour dynamics

Horticultural industry growth has coincided with major demographic and migration trends across Australia. These trends are not only affecting the availability of labour for the industry but also the social fabric of regional and rural communities.

#### Labour shortage and regional employment challenges

The horticultural sector requires an abundance of workers, but the cost, availability, and quality of labour have long been challenging for the sector. Due to the lack of a stable and reliable local workforce, horticulture has historically relied on foreign labour. This is particularly complex in regional and rural Australia, where infrastructure to support foreign workers can be under-resourced. At the same time, these unmet labour demands coexist with high rates of regional unemployment (often intergenerational) and serious social disadvantage, particularly in areas facing chronic housing shortages. While currently facing challenges in finding suitable workers locally, the horticulture sector also has the potential to be an important driver of regional development through improved career development pathways.

#### Changes in migration policy and seasonal labour schemes

From historical blackbirding (forced indentured labour) to modern temporary migration programs, Australia's agricultural sector has always been linked to the availability of foreign labour. Indeed, the current horticultural boom can be directly traced back to changes to migration policy that facilitated 'backpacker' labour (i.e. the Working Holiday Maker program) to work in primary industries. The heavy reliance of Australia's horticulture on temporary migrant labour caused tremendous difficulty for the sector during the COVID-19 pandemic, with widespread labour shortages resulting from border closures. While the return of backpackers and the introduction of the Pacific Australia Labour Mobility (PALM) scheme offer some relief to the sector, multiple challenges still exist, including around wages and housing, regulatory compliance, and ensuring decent work.

#### **CASE STUDY**



#### **PALM Scheme**

During the COVID-19 pandemic, Australia closed its borders to most temporary migrants, including 'backpackers' who traditionally provided labour for the horticultural sector. To meet the labour demand, Australia turned to the Pacific Australia Labour Mobility (PALM) scheme, which expanded the intake of Pacific Islanders workforce. Built upon the previously existing Seasonal Worker Programme (SWP) and Pacific Labour Scheme (PLS), the PALM scheme allows migrants from ten nationalities to work in Australia for both short and long terms. The introduction of the PALM scheme in 2022 has led to a significant shift in the labour force within farms across Australia. This shift has also brought about a cultural change, with Pacific cultures becoming more prevalent in farms, accommodations, and regional communities. However, there are key issues around the scheme that remain unresolved, such as better understanding its impact on international development, balancing the regulation of labour conditions with the seasonal needs of farm production, and meeting the varied needs of different sized farm operations.

#### Multicultural regional communities

The surge in horticulture is also turning regional Australia into a more multicultural landscape. Australia's seasonal migration programs have expanded over the years and currently attract overseas workers of more than 50 nationalities across the Working Holiday Maker (WHM) program and the Pacific Australia Labour Mobility (PALM) scheme. Despite being considered seasonal and temporary, their presence is constant in regional Australia, with many becoming residents in these areas (potentially also becoming Australian citizens). At the same time, people from different nationalities, ethnicities and cultural backgrounds have long been moving to rural areas of Australia, largely (but not only) in connection with the horticultural sector. These trends have infused food-producing regions with diverse cultural needs, values and food-related practices, and they underlie the connectedness of Australia's horticultural communities with global production networks.

#### **CASE STUDY**



#### Punjabi producers of blueberries in Coffs Harbour

Coffs Harbour, renowned as the home of the Big Banana, has become a key centre for blueberry cultivation (Berries Australia, 2024). Interestingly, a notable portion of blueberry growers in this area originate from Punjab, India. This migration wave was originally spurred by the need for workers in the banana industry which saw the establishment of the first Sikh Temple in Australia, in Woolgoolga. Over time, Punjabi migrants built wealth, bought banana farms, encouraged further familial migration and were integral to the expansion of blueberry farming. This case illustrates how farming transcends its role as a mere economic activity; it brings together elements of identity, family, livelihood, purpose, and culture. For many international migrants, horticulture is a means of establishing a home away from home.

#### 5. Social license to operate

Horticulture in Australia is facing evolving social license challenges, as are other industries and food systems worldwide. The social license to operate relates to both society's acceptance of industry practices and the industry's capacity to demonstrate accountability, responsibility and ethical practices. Concepts like triple bottom line, environmental and social governance (ESG), corporate social responsibility (CSR) and sustainable development are part of the daily conversation and activities in horticulture. This trend encompasses many of the multifaceted concerns previously mentioned, ranging from environmental considerations around water, energy and food waste, to key social justice issues, notably labour rights and working conditions. It also represents a major paradigm shift towards heightened regulatory oversight (voluntary and legislative) and to social expectations around human rights and wellbeing that are increasingly built into ESG governance.

#### Climate change and ecological health

Australia's horticultural sector faces social, economic, and political challenges in response to climate change and environmental impacts, as does agriculture more broadly. Carbon emissions, soil health, water usage, biodiversity conservation and the management of fertiliser and agrochemical runoff are at the forefront of these concerns, particularly where agricultural production occurs near sensitive ecological zones (such as World Heritage rainforests and the Great Barrier Reef). Moreover, farming practices, notably pest control methods, are increasingly subject to escalating scrutiny and suspicion within communities. These concerns tend to amplify as agricultural landscapes make way for housing developments, necessitating farms to coexist with non-agricultural neighbours. Growing demand for renewable energy, particularly biofuels from sugarcane, has already prompted changes, and there is mounting pressure on the industry to reduce food waste across the supply chain. The sector needs to navigate and address these contestations effectively. As the Australian Government develops its plan to transition our economy to net zero emissions by 2050, the horticultural industry will have a key role to play in decarbonising agriculture.

#### **CASE STUDY**



#### **ERA standards for banana cultivation in Cairns**

Banana cultivation in the Great Barrier Reef Catchment is subject to several environmental regulations, one of which is the Environmentally Relevant Activity (ERA) standard. Implemented in 2022, the ERA imposes restrictions on the use of nitrogen and phosphorus fertilisers, while also addressing soil erosion and sediment control. The standard is the result of years of negotiation between authorities, such as the Queensland Department of Environment and Science, and growers' representatives, including the Australian Banana Growers' Council (ABGC). Despite the success of this negotiation, the implementation of the ERA still faces ongoing challenges, including practicality issues due to farm variations, uncertainties stemming from insufficient data, and complexities in ensuring compliance and enforcement. In addition to the ERA, programs such as the third-party Freshcare Environmental Reef Assured and ABGC's Best Practice Management (BMP) further contribute to the environmental governance framework for the banana industry in the region.

#### Local food for local people

Despite Australia producing the majority of its own domestic fresh food, food insecurity is increasing. The ability to access healthy food required for a sustainable diet is closely related to income, meaning that people who are unemployed, elderly or reliant on income support are more likely to experience higher levels of food insecurity, as are people living in rural and remote areas, women, young people, migrants and Indigenous people. COVID-19 exacerbated food insecurity, with mainstream food channels disrupted and food charities unable to keep up with demand. With the rising cost of living and high food prices strongly influenced by the supermarket duopoly (Coles and Woolworths control 80% of food retail in Australia), food security is an important issue in the NECS. One response has been the growth of 'short supply chains' supporting local food production and consumption, often using ecological farming methods and distribution models outside of major retailers. Restaurants and stores are also responding by prioritising regional produce and highlighting the origin of their products. Farmers' markets, farm gates, community-supported agriculture schemes, urban agriculture and food waste initiatives demonstrate that communities increasingly value supporting local businesses and working together to embed social justice, ecological sustainability and economic wellbeing into future food systems. However, competing values and land uses between local food and globalised horticulture are potential sources of contestation.

#### Indigenous rights and reconciliation efforts

The level of Indigenous engagement in the horticultural sector, as growers, processors or traders, is currently unknown. How Indigenous people are involved in horticultural-related decision-making around land, environment, and labour is also unclear. Recognition that agriculture takes place on Indigenous lands and have contributed to the ongoing impacts of colonisation is of fundamental importance to realising a more socially just future. The acknowledgement of Indigenous land and water rights including the handing back of land, water and sea Country, and land that has to be negotiated through Native title claims and contested through other legislative processes - are integral to questions of regional resource allocation and environmental management. Ongoing efforts for reconciliation through local and national truth-telling and the inclusion of Indigenous governance practices constitute another trend that will influence and shape the equitable evolution of Australia's horticultural sector. Connected to worldwide evolving expectations around social and environmental responsibility and upholding the UN Declaration on the Rights of Indigenous Peoples (UNDRIP), this trend extends beyond regulatory considerations to encompass progressive social expectations about First Nations' wellbeing, human rights, social and environmental justice claims, and cultural and economic self-determination. To maintain its social license to operate, the horticultural sector will need to actively engage with shifting societal expectations with regards to Indigenous peoples and communities.

## Looking ahead

In the first year of this project, our engagement with over 70 participants has provided insights into overlapping trends that are influencing regional development within the horticultural areas of Australia's Northeastern Coastal Strip. As we continue this project, our goal is to better explore the complexities and consequences of these trends and to conceptualise the 'global production network-territory' nexus as it relates to land, labour, and environment.

Moving forward, we will continue to engage with a diverse range of stakeholders associated with the four sites of focus. This ongoing dialogue will allow us to capture a more comprehensive view of the development processes shaping these regions. We are planning ways to disseminate findings and work with communities further and welcome any suggestions on how you would like this to be done. We view this as an opportunity to learn and collaborate with those involved not only in the horticultural sector, but also in the wider community.

We invite your feedback on this scoping report, encouraging insights, critiques, and suggestions for potential areas of focus. Different perspectives will help refine our approach and ensure we address gaps in our preliminary findings. If you wish to contribute to our ongoing research or share your thoughts, please feel free to reach out to Rafael Azeredo via email at r.azeredo@uq.edu.au.

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