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TIÊU CHUẨN ASEAN VỀ HẠT CÀ PHÊ VÀ BÀI HỌC KINH NGHIỆM CHO VIỆT NAM

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Tóm tắt

Với tầm quan trọng của hội nhập kinh tế và phát triển khu vực, việc thiết lập những tiêu chuẩn khu vực đối với hàng hoá và dịch vụ xuất khẩu trở nên quan trọng và các quốc gia thành viên nên chú trọng tuân thủ để đảm bảo chất lượng cũng như gia tăng xuất khẩu. Bài nghiên cứu tập trung vào việc đánh giá mức độ tuân thủ của Việt Nam đối với những tiêu chuẩn của ASEAN về hạt cà phê, đánh giá những khó khăn trong quá trình này và từ đó đưa ra phương hướng và một số biện pháp cụ thể cho người nông dân và người sản xuất hạt cà phê. Thông qua so sánh giữa những tiêu chuẩn hiện có của Việt Nam đối với hạt cà phê và tiêu chuẩn của khu vực, bài nghiên cứu chỉ ra rằng Việt Nam đang có hướng đi đúng nhưng cần có thêm sự đầu tư về thông tin, quá trình sản xuất và cơ sở vật chất.

Từ khoá: Việt Nam, ASEAN, hạt cà phê, tiêu chuẩn khu vực, tuân thủ

ASEAN STANDARDS FOR COFFEE BEANS & IMPLICATIONS FOR VIETNAM

Abstract

Establishing regional standards for exported products and services has become essential given the significance of economic integration and regional growth; member nations should be mindful of these standards and abide by them to guarantee quality and boost exports. The study's main

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objectives are to evaluate Vietnam's adherence to ASEAN coffee bean standards, identify the challenges Vietnam has in this endeavor, and suggest guidance and proposals for coffee bean producers and farmers. The study finds that Vietnam is making progress toward meeting regional requirements for coffee beans by comparing its current standards with those of ASEAN. However, additional investment is required in terms of infrastructure, manufacturing processes, and information.

Keywords: Vietnam, ASEAN, coffee beans, regional standards, compliance

1. Introduction

1.1. Reasons to choose the topic

The topic of "ASEAN Standards for Coffee Bean & Implications for Vietnam" holds considerable significance for several reasons. Firstly, the coffee industry plays a crucial role in Vietnam's agricultural sector and has a significant impact on the global economy. Therefore, exploring the ASEAN standards for coffee beans and their implications for Vietnam can provide valuable insights into the challenges and opportunities faced by the country in this sector.

Secondly, as a regional organization promoting economic integration and cooperation, ASEAN's standards for coffee beans are essential to understanding the dynamics of regional trade and harmonizing regulations related to the coffee industry. By researching these standards, Vietnamese coffee producers and exporters can gain a comprehensive understanding of the requirements needed to meet the regional standards. This understanding can ultimately enhance competitiveness and facilitate market access within the region, as well as identify opportunities for expanding market reach and increasing trade volume.

Overall, by examining the ASEAN standards for coffee beans and their implications for Vietnam, this research topic can provide valuable insights into the challenges, opportunities, and strategies for sustainable growth in the regional and global coffee markets.

1.2. Subject and scope

The subject and scope of this report involve researching and studying the standards for coffee beans within the ASEAN member states. The focus is on understanding the requirements, regulations, and overall landscape pertaining to the quality standards set for coffee beans produced and traded within the market in Vietnam. Our group research will encompass aspects such as bean size and shape, moisture content, defects and impurities, and processing methods. By investigating the standards of coffee bean standards, we aim to gain insights into industry practices and assess the compliance of these standards in Vietnam.

1.3. Objectives

The objective of our research is twofold. Firstly, we aim to study and evaluate the development and implementation of standards for coffee beans in Vietnam. This includes assessing the effectiveness of these standards in ensuring quality and consistency in the coffee industry. We will examine how these standards have influenced the market and the level of compliance in Vietnam.

Secondly, our group seeks to explore the key challenges impeding Vietnam's coffee exports within the ASEAN region. This involves identifying the current state of Vietnam and the specific

obstacles, or barriers that hinder Vietnam's ability to meet the required standards for coffee beans and compete effectively in the ASEAN market. Through this evaluation, we intend to provide practical suggestions and recommendations to help Vietnam enhance its coffee industrial performance within ASEAN.

By accomplishing these objectives, we aim to provide valuable insights into the current state of coffee bean standards in Vietnam, highlight the accomplishments achieved and challenges faced by Vietnam's coffee industry, and offer actionable recommendations to improve the situation.

1.4. Methodology

In this research, we utilized secondary data as our primary methodology. Secondary data refers to existing information that has been collected by other researchers or organizations for purposes other than our specific study. We conducted an extensive review and analysis of various secondary data sources, such as academic journals, published reports, government publications, and reputable online databases. By leveraging the wealth of available secondary data, we were able to gather a comprehensive understanding of the subject matter, identify trends, and draw meaningful insights. The use of secondary data allowed us to save time and resources that would have been required for primary data collection. We ensured the reliability and credibility of the secondary data sources by carefully evaluating their quality, relevance, and validity.

2. Overview of Asean's Coffee industry and standards

2.1. Overview of ASEAN and its coffee industry

ASEAN, which stands for the Association of Southeast Asian Nations, is a regional intergovernmental organization comprising of ten member states: Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, the Philippines, Singapore, Thailand, and Vietnam.

The coffee industry within ASEAN is a significant economic sector with a considerable market size and promising growth potential. ASEAN collectively accounts for a substantial portion of global coffee production and consumption. In 2023, the ASEAN coffee market will generate US$8.2 billion in revenue. The market is anticipated to expand by 7.81% annually (CAGR 2023–2028) (Statista, 2023). While coffee bean varieties can vary across ASEAN, Robusta and Arabica dominate the industry (No Harm Done, 2022).

Coffee is a staple product that is also referred to as the "elixir of life" and has long been one of the top-grossing items on the market. In 2020–2021, 166.63 million 60-kg bags of coffee were consumed globally, with an average annual consumption of 42.6 liters per person. Two of the ASEAN members—Vietnam, which comes in second, and Indonesia, which comes in fourth—are significant actors in the global supply chain for coffee. Vietnam's Robusta exports increased by 15.1% to 26.78 million bags in 2021–2022, while Indonesia's exports of green coffee increased from 6.82 million to 6.92 million bags (Adan, 2023).

The growth potential of the ASEAN coffee industry is driven by various factors. Firstly, the region has diverse coffee-growing landscapes and climates, allowing for the cultivation of a wide range of coffee varieties (Adan, 2023). Secondly, the rising global demand for coffee and the increasing popularity of specialty coffee have created opportunities for expansion (Garcia, 2018). Thirdly, ASEAN countries have been investing in modernizing their coffee production techniques

and improving quality standards. This commitment to quality is essential to tap into international markets and compete with other coffee-producing regions. This practice can be clearly seen in the case of the Philippines, where the Philippine Coffee Industry Roadmap (2017–2022) was developed and approved in order to implement various programs associated with the coffee market (Garcia, 2018).

2.2. Overview of ASEAN Food Safety Policy

The ASEAN Food Safety Policy is a comprehensive policy that serves as the foundation for ongoing and future efforts by ASEAN Ministerial Bodies in charge of health, agriculture, and trade to enhance consumer rights, protect consumer health, and raise the standard of food produced and traded within ASEAN.

This policy's objectives are to give guidance to relevant ASEAN Sectoral Bodies and ASEAN Member States in order to safeguard the health of ASEAN consumers, ensure fair practices in food trade, and facilitate the free flow of safe food products within the region. Written in "ASEAN Food Safety Policy, 2016", these objectives include:

- Establishing and implementing food safety measures;
- Fostering the process of harmonization of food safety measures and control procedures of ASEAN Member States;
- Supporting the efforts of ASEAN Member States in strengthening national food control systems.

All areas involved in ensuring and controlling food safety, including agriculture, health, industry, and commerce, are covered under the ASEAN food safety policy. For the convenience of members to exchange information relevant to food safety, a channel about this policy has been formed.

2.3. Role of ASEAN Food Safety Network (AFSN)

In accordance with the decision of the 25th meeting of the ASEAN Ministers on Agriculture and Forestry - AMAF (2003 in Malaysia), the ASEAN Food Safety Network (AFSN) was established. The AFSN was created to provide an avenue for ASEAN Member States to communicate about food safety-related information.

Currently, the AFSN serves as a central platform for coordination and information exchange for ASEAN cooperation on food safety under ASEAN Ministers. It is at present focusing on technologies and initiatives that will allow Member States to collaborate and communicate online. These channels include the ASEAN Consultative Network as well as websites for a number of ASEAN Working Groups including the Expert Group on Food Safety, Task Force on Codex and Working Group on Halal Foods (National Bureau of Agricultural Commodity and Food Standards, Ministry of Agriculture and Cooperatives, n.d.).

Furthermore, the AFSN has consistently supplied and communicated food safety legislation and standards, as well as important information or circumstances issued, implemented, or informed by Member States, other nations, and international organizations. Codex, INFOSAN, the EU, ASEAN, and the United States of America are a few examples (National Bureau of Agricultural

Commodity and Food Standards, Ministry of Agriculture and Cooperatives, n.d.). As a result, Member States can access and get current information in order to prepare for newly implemented regulations or urgent situations. This would help ASEAN member countries maintain and improve their potential and competitiveness in the global market.

With the establishment of the ASEAN Food Safety Policy and the ASEAN Food Safety Network, member nations can be clear and precise about food safety-related information in order to strengthen consumer rights, protect consumer health, and elevate the level of food produced and traded within ASEAN. The coffee market in Southeast Asian countries has been rising in recent years, owing to the expansion of new markets such as Vietnam and Thailand, as well as significant economic growth (ResearchAndMarkets.com, 2023). In improving and developing the quality of ASEAN's coffee beans, the ASEAN Standards for Coffee Beans was introduced.

2.4. Development of ASEAN Standards for Coffee Beans

The ASEAN Standards for Coffee Beans (ASEAN CS) were developed by the ASEAN Coffee Federation (ACF). ACF was founded by a group of ASEAN coffee industry leaders who are dedicated to enhancing and developing the quality of ASEAN's coffee beans, so as to compete on the world stage. Later, in 2013, the formal formation of the ASEAN Coffee Federation was completed with its adoption of the Federation's Constitution by the Board to be official (ASEAN Coffee Federation (ACF), n.d.). ASEAN CS was adopted by the ASEAN member states in 2015. The standards cover a wide range of aspects of coffee, including definitions, classification, quality, packaging, and labeling.

The ASEAN CS was developed in response to the need for harmonized coffee standards in the ASEAN region. The standards are designed to promote regional trade and cooperation in the coffee sector. They also help to ensure that consumers have access to high-quality coffee products (ASEAN CoffeeBaseline Information). Besides, the standards are also based on international standards, but they also take into account the specific needs of the ASEAN region. For example, the ASEAN CS includes requirements for the use of good agricultural practices, which can help to protect the environment and improve the livelihoods of coffee farmers.

3. Content of Asean Coffee beans standards

Following the milling process, green coffee undergoes grading and classification to prepare it for exportation. The primary aim of this process is to establish consistent and homogeneous commercial batches that conform to specific quality criteria, thereby promoting fair pricing. However, green coffee has no globally standardized grading and classification system. Each coffee-producing country has devised its own system, including grade charts, frequently used to establish minimum export standards.

The ASEAN Standard for Coffee Bean, also known as ASEAN Stan 31:2013, is a set of guidelines that apply to dried green coffee beans of commercial varieties grown from Coffea arabica L., Coffea robusta L. (Coffea canephora Pierre ex), and Coffea liberica. The standard defines the minimum requirements for coffee beans in terms of quality, size, and moisture content, among other factors. The ASEAN Standard for Coffee Bean is an important tool for ensuring the quality and consistency of coffee beans in ASEAN and promoting the growth of the coffee industry in the region.

3.1. Explanation of the key quality parameters in ASEAN coffee standards

3.1.1. Bean size and shape

The size standard for coffee beans, as outlined in the ASEAN Standard for Coffee Bean (ASEAN Stan 31: 2013), is determined based on the diameter of the individual bean. The following table provides the size codes and corresponding bean sizes:

Table 1. Size codes and corresponding bean sizes

Size Code	Bean Size (mm)
1	>7.0
2	> 6.5-7.0
3	>6.0-6.5
4	>5.5-6.0
5	>5.0-5.5
6	4.0-5.0

According to this standard, coffee beans are classified into different size codes based on their diameter measurement. For example, if a coffee bean has a diameter greater than 7.0 mm, it falls under size code 1. Similarly, if the diameter is between 6.5 and 7.0 mm, it belongs to size code 2, and so on.

In grading green beans, there exists a theory (International Coffee Organization) behind classification size that coffees of the highest altitudes are denser and larger in size than those produced at lower altitudes. Similarly, coffee develops more slowly at higher altitudes and often has the best flavor profiles. Thus, the size of the beans matters. Several coffee origins base their premium prices on bean size. The size standard helps ensure consistency and uniformity in the sizing of coffee beans, allowing buyers and sellers to categorize and trade beans based on their size.

According to ASEAN Standard, it does not explicitly mention any specific standardization for bean shape. However, it is worth noting that they mention the coffee beans must be "whole" and show characteristics of the variety. This implies that the beans should be intact and not fragmented. Additionally, the beans should meet the minimum requirements specified in terms of quality, appearance, and freedom from defects or damage that may affect their brewing quality.

While the document does not provide detailed guidelines or specifications regarding the shape of coffee beans, it can be inferred that uniformity in shape is desirable and that any abnormal or irregular shapes may be considered defects, affecting the general appearance and quality of the beans.

3.1.2. Moisture content

According to the Standard, the moisture content of dried green coffee beans must not exceed 13%. This moisture content requirement is applicable to all classes of coffee beans mentioned in the standard.

Maintaining the appropriate moisture content is crucial for preserving the quality and shelf life of coffee beans. Excessive moisture in coffee beans can lead to issues such as mold growth, deterioration in flavor, and increased susceptibility to pests and spoilage (Chacon, 2022). On the other hand, insufficient moisture can result in overly dry beans, affecting their brewing properties and overall quality.

By setting a maximum moisture content of 13%, the standard aims to ensure that coffee beans are dried adequately and stored in a condition suitable for processing, transportation, and consumption. Adhering to this moisture content requirement helps maintain the integrity and quality of the coffee beans, allowing for optimal flavor development and brewing results (Li et al., 2021).

3.1.3. Defect and impurities

Defect

The standard defines three classes of coffee beans based on the level of defects allowed:

- **Extra Class:** Beans in this class must be of superior quality and practically free of defects that affect the general appearance, quality, quality, and presentation of the produce. The total allowable defects should not exceed 7%.

- **Class I:** Beans in this class must be of good quality, and certain defects are allowed as long as they do not affect the general appearance, quality, quality, and presentation. The total allowable defects should not exceed 15%.

- **Class II:** Beans in this class do not qualify for the higher classes but still meet the minimum requirements specified in Section 2.1 of the standard. Some defects may be allowed as long as the essential characteristics of the coffee bean, including quality, keeping quality, and presentation, are retained. The total allowable defects should not exceed 25%.

The standard provides a table that specifies the permissible percentage of various defects, such as black beans, moldy beans (other than mycotoxin-producing mold), infested beans, immature beans, broken beans, dried cherries, foreign matter, and total allowable defects for each class. The table ensures a standardized approach to assessing and categorizing coffee beans based on their defect levels.

Table 2. Type of defect

	Percentage of Defect

Type of Defect	Extra Class	Class I	Class II
Black bean	<4.0	4.0-6.0	>6.0– 15.0
Moldy (other than mycotoxin-producing mold) and infested bean	<5.0	5.0-6.0	>6.0-8.0
Immature bean	<2.0	2.0-3.0	>3.0-8.0
Broken bean	<3.0	3.0-5.0	>5.0-10.0
Dried cherries	<0.5	0.5-1.0	>1.0-2.0
Foreign matter	<1.0	1.0-1.5	1.5-2.0
Total allowable for defects	7.0	15.0	25.0

Impurities

The standard emphasizes that coffee beans should be clean and practically free of any visible foreign matter. The beans should be free from pests and damage caused by them, and they should be practically free from abnormal external moisture. The presence of mycotoxin-producing mold should be minimized.

The standard also states that coffee beans should be free from any foreign smell and/or taste, ensuring that the beans maintain their inherent flavors and characteristics.

These provisions regarding defects and impurities aim to maintain the overall quality, appearance, and sensory attributes of coffee beans, ensuring a satisfactory brewing experience for consumers. By setting limits on defects and impurities, the standard promotes consistency and quality in coffee production and trade within the ASEAN region.

3.1.4. Processing methods

Overall, The Standard for Coffee Bean does not provide specific guidelines for coffee processing methods. However, processing methods can significantly impact the flavor, aroma, and overall quality of coffee beans. Different regions and coffee-producing countries may have their own traditional or preferred processing methods. Processing methods for coffee beans typically involve steps such as harvesting, sorting, de-pulping, fermentation, washing, drying, and hulling (2023). In the ASEAN region, several common processing methods are used for coffee beans.

- **Wet processing:** Coffee in the ASEAN region is often produced on small farms with a wet processing method, which is also known as Giling Basah in Indonesia (2021). In this method, the outer skin of the coffee cherry is removed, and the beans are left in the mucilage for 24 hours

before being washed and dried. Besides Indonesia, wet processing is also used in other ASEAN countries such as Thailand, Laos, and Vietnam (2021).

- **Natural processing:** The natural processing method is the oldest method for processing coffee beans and is also used in ASEAN countries (Caitlin, 2020). In this method, the coffee cherries are dried with the beans still inside, allowing the beans to absorb the flavors of the fruit. This method can result in fruity and wine-like flavors in the coffee. Natural processing is commonly practiced in Indonesia and the Philippines (Caitlin, 2020).

- **Honey processing:** Honey processing, also known as pulped natural processing, is a method in which the fresh coffee cherry is mechanically removed and dried without washing (2020). This method can result in a coffee with a sweet and fruity flavor. In the ASEAN region, countries such as Indonesia and Thailand (2020) also experiment with honey processing methods to create unique flavor profiles and add diversity to their coffee offerings

- **Anaerobic processing:** Anaerobic processing is a newer method that involves fermenting coffee beans in an oxygen-free environment (Lynch, 2021). This method can result in a coffee with a unique and complex flavor profile. Thailand, Vietnam, and Indonesia (Lynch, 2021) have seen coffee producers experimenting with anaerobic processing. These producers carefully control factors such as temperature, time, and specific fermentation techniques to develop distinct flavors in their coffee beans.

3.1.5. Provisions concerning presentation

The Standard for Coffee Bean also includes provisions concerning the presentation of coffee beans. These provisions aim to ensure uniformity and proper packaging to protect the quality of the beans.

- **Uniformity**

Each package or lot of coffee beans presented in bulk must be uniform and contain only coffee beans of the same origin, variety, commercial type, quality, and size. The visible part of each package or lot should be representative of the entire content. This requirement ensures consistency and helps buyers identify the characteristics of the coffee beans.

- **Packaging**

Coffee beans must be properly packed to protect the produce. The materials used inside the package must be clean and of good quality to avoid any external or internal damage to the beans. The use of materials like paper or stamps with trade specifications is allowed, as long as non-toxic ink or glue is used for printing or labeling.

- **Description of Containers**

The containers used for packaging coffee beans should meet specific quality, hygiene, ventilation, and resistance characteristics to ensure suitable handling, shipping, and preservation of the beans. The packages or lots must be practically free of foreign matter and odor.

By following these provisions concerning presentation, coffee bean suppliers can maintain a consistent and high-quality product. Uniformity in packaging allows buyers to make informed decisions based on the specific characteristics of the coffee beans. Proper packaging materials and

containers protect the beans from any damage or contamination, ensuring their quality throughout the supply chain (2023).

3.2. Comparison of ASEAN standards with international standards

The ASEAN Standard, the Specialty Coffee Association (SCA), and the International Organization for Standardization (ISO) have different approaches to evaluating coffee quality and processing methods. The ASEAN Standard defines minimum requirements for coffee beans, while the SCA and ISO have developed more comprehensive grading systems that evaluate coffee based on a range of attributes. Despite the differences, all three organizations recognize the importance of harmonizing standards and adopting international standards to promote consistency and quality in the coffee industry.

3.2.1. Scope

In terms of scope, the ASEAN Standards 30:2013 is a regional standard developed by the ASEAN Coffee Federation (ACF) specifically for coffee within the ASEAN region. It focuses on ensuring the quality and safety of coffee products traded among ASEAN member countries.

On the other hand, the SCA standards, developed by the Specialty Coffee Association, aim to raise standards worldwide in the specialty coffee industry, to set and maintain quality standards for specialty coffee at every stage of the coffee production process. This includes standards for green coffee, water, brewing, and sensory evaluation. The SCA also provides education and training programs for coffee professionals and organizes events and competitions to promote the specialty coffee industry.

The ISO/TC 34/SC 15 standards cover the entire coffee chain from green coffee to consumption, with a focus on standardization in the field of coffee and coffee products. These standards are developed by the International Organization for Standardization (ISO) and are applicable to the global coffee industry, ensuring that coffee products meet the necessary quality, safety, and sustainability requirements for international trade.

Overall, in comparison to the ASEAN Standards, the ISO standards for coffee and the SCA standards have broader scopes, with the ISO standards focusing on global standardization and the SCA standards specifically targeting the specialty coffee industry.

3.2.2. Quality Evaluation

In terms of quality evaluation, the ASEAN Standards, ISO standards for coffee, and SCA standards have different focuses and approaches.

Firstly, the ASEAN Standards include specific requirements for coffee quality, such as sensory evaluation, moisture content, and defects. These criteria help assess the overall quality of coffee products and ensure that they meet the necessary standards for consumption and trade within the ASEAN region. However, these standards show certain limitations when it comes to providing specific guidelines or recommendations for coffee processing methods. Furthermore, those requirements also lack guidelines or requirements related to environmental sustainability, fair trade, or social impact which are very necessary in updated trade.

Secondly, regarding quality evaluation, the SCA standards also provide guidelines and standards to assess the overall quality of coffee by specifications and test methods for various coffee-related equipment and training venues. These standards focus on various aspects of the coffee's physical characteristics, defects, and grading principles. For example, the SCA's Green Coffee Classification standard helps classify coffees based on their quality attributes, such as defects, cup characteristics, and screen size. This classification system, although not specifically focused on quality evaluation, provides a valuable tool for assessing the overall quality of coffee products in the specialty coffee industry. The SCA grading system also evaluates coffee based on attributes such as acidity, sweetness, flavor, and aftertaste. Besides that, concerning processing methods, SCA has clearly explained the common methods used as mentioned above. Furthermore, the SCA Sustainable Coffee Agenda has developed specific standards and initiatives to address sustainability and social responsibility such as their promotion of environmentally friendly practices in coffee production and of fair and equitable trade practices, transparency, and economic viability for coffee producers, and so on.

The ISO/TC 34/SC 15 standards focus on various aspects of the coffee chain from green coffee to consumption, especially on water content determination, quality, safety, and sustainability in the coffee industry. For instance, ISO 4149:2005 specifies methods for the olfactory and visual examination and for the determination of foreign matter and defects in green coffee. These standards provide a comprehensive framework for evaluating the quality of coffee products and ensuring that they meet the necessary requirements for consumption and trade on a global scale. The ISO standards related to coffee, such as ISO 14040:2006 and ISO 14044:2006, focus on environmental management and life cycle assessment. While these standards address the environmental impact of coffee production, they do not explicitly cover social responsibility aspects or provide guidelines for fair trade or social initiatives.

In summary, the ASEAN Standard 30:2013, ISO standards for coffee, and SCA standards have different focuses and approaches in terms of quality evaluation. The ASEAN standard includes specific requirements for coffee quality, while the ISO and SCA standards focus on various aspects of coffee production, processing, and equipment, which indirectly contribute to the overall quality of coffee. These standards play a crucial role in ensuring that coffee products meet the necessary quality standards for consumption and trade, both regionally and globally.

3.2.3. International Recognition

ASEAN Standards primarily apply to coffee production within the ASEAN region. They just aim to promote harmonization and facilitate trade in coffee products among ASEAN member countries,

SCA has gained significant international recognition within the specialty coffee industry. The SCA is a global organization with a large and diverse membership base. It is also considered authoritative and widely adopted within the specialty coffee community

ISO is a globally recognized standard-setting body. ISO standards cover various industries and are widely accepted and utilized by organizations worldwide. While ISO has developed several standards related to coffee, including those addressing sensory analysis and physical characteristics, ISO's standards for coffee might not be as widely recognized and adopted within

the specialty coffee industry as the SCA standards. ISO standards are generally more focused on broader aspects of standardization, methodology, and consistency across industries.

4. Implications for Vietnam's coffee industry

4.1. Current state of Vietnam's coffee export

Vietnam became the leading coffee exporter in Southeast Asia and was the second biggest exporter in the world from 2021 to 2022 (VietnamPlus, 2023). The total value of coffee export in 2021 was $2.34 billion (OEC) while the output stood at 1.74 million tons (WTO, 2023). 2022 was regarded as a successful year for coffee exports as the output reached 1.89 million tons, and Vietnam exported 1.78 million tons, with the highest turnover of the decade - $4.06 billion (WTO, 2023). Due to heavy rain, the 2023 supply is expected to be lower, making it difficult to maintain the same rate (WTO, 2023). However, over the first 5 months of 2023, there has been a 0.2% increase in export value, accumulating an estimated amount of $2.02 billion in spite of a 2.2% decline in output (Nguyen, 2023b). The country's exports are at their highest price over the last 10 years, with an average price of 2,682 USD/ton in June 2023 (Long, 2023), climbing to a new high of 3,054 USD/ton in late August (Vietnamnet). For ASEAN countries, Indonesia and Thailand are two remarkable markets. Indonesia is among the top 10 coffee export markets of Vietnam as in April 2023, the figure for export volume had a growth of 220% while that for value rose by 275% compared to April 2022 (Nguyen, 2023a). By September 2023, the average growth rates were 157.8 in volume and 118.6% in value (Vietnamnet). Thailand imports primarily from Vietnam, with Vietnam's coffee making up a total of 65.3 million USD, which is 4 times as high as that of Laos in second place (OEC for Thailand, 2021).

Considering the type of coffee, most of the products are exported as raw beans (Nguyen, 2023c). Still, the first half of 2023 witnessed a rise in the amount of processed coffee exported (Long, 2023). Robusta coffee, which contains a high level of caffeine, and Arabica, which consists of Moka with fragrance and a light chewy taste, and Catimor with a slightly more sour taste are the main exports of Vietnam (Nguyen, 2018). Bourbon and Typica are higher-quality varieties of Arabica planted by few small farms, and the output is insignificant when compared to the dominant type (Miller, 2018). Robusta is often underestimated since they have a bitter, rubbery, and earthy flavor that is only suitable for instant brew (Agence France-Presse, 2023) while Arabica is deemed as "complex" and "deliciously refined" (Tan & Nguyen, 2023). Given the alarming changes due to global warming, Arabica is much more susceptible to a warming planet, making their produce unpredictably fluctuate. Brazil suffered a severe frost in 2021, losing approximately 200,000 hectares of Arabica crops while Honduras had back-to-back hurricanes and Colombia had major rainfall fluctuations. Hence, Vietnam aims to improve the flavor of the Robusta - "the ugly stepsister" that "grows robustly in tough conditions" (Tan & Nguyen, 2023) as they are pivoting towards it. Robusta has already accounted for more than 93% of Vietnam's produce (Tan & Nguyen, 2023) as Vietnamese researchers have been continuously improving its adaptability and other favorable characteristics (Nguyen, 2019).

Vietnamese main focus has long been volume (Castellano, 2021) as they employ large-scale, low-intervention mass production, giving other countries the impression that Vietnam values quantity over quality. Most of the beans are hand-picked (Castellano, 2021, Nguyen, n.d). The common picking techniques include selective picking, in which only seeds with a relatively ripe

ratio are picked, and strip harvesting, stripping from the tip of the branch until the end (Nguyen, n.d). For processing methods, dry processing using sunlight is applied by the majority of farmers. These are dried as quickly as possible after removing leaves and impurities, leaving room for quality issues. Washed processing requires more machinery and water, as the seeds are poured into a tank, only those that sink will be peeled, soaked, and fermented before being dried (Nguyen, n.d). The mix of these two methods is honey processing, with beans fermented and then dried in a short period of time. Farmers are starting to favor fermentation, especially in half-wet/honey methods to improve quality (Castellano, 2021). Most of these are done in compliance with Vietnam's standards for coffee beans as stated by the Vietnam Coffee - Cocoa Association (VICOFA).

4.2. Vietnam's compliance with ASEAN coffee standards

Vietnam's coffee industry has witnessed remarkable growth and development over the years, contributing significantly to the nation's economy. With aspirations to expand its presence in both regional and global markets, aligning the industry with the standards established by the Association of Southeast Asian Nations (ASEAN) is of paramount importance.

Vietnam has been actively adopting and complying with ASEAN coffee standards. The Vietnamese government has introduced and revised regulations to align the country's coffee production and processing with ASEAN standards. This includes establishing guidelines for the quality, safety, and labeling of coffee products. Furthermore, coffee industry stakeholders, including growers, processors, and exporters, have collaborated to implement best practices that involve knowledge sharing, training, and capacity-building programs. Coffee producers have invested in quality control processes and equipment to ensure that their products meet the specified standards by testing and monitoring at various stages of production.

Vietnam's export standards align with and are somewhat stricter than ASEAN standards, with moisture content, black & broken beans, and foreign matter ratios all lower by 0.5% to 1.0% (Roasters, 2021).

Table 3. Comparison between Vietnam and ASEAN standards

Aspect (max)	**Vietnam**	**Asean**
Moisture	12,5%	13.0%
Black & broken beans	2.0%	3.0%
Foreign Matter	0.5%	1.0%

Several coffee producers in Vietnam have sought certification from recognized bodies to demonstrate their adherence to international and regional standards. Numerous Vietnamese coffee farmers have been using cutting-edge agricultural production technology to obtain national and international certifications, including:

ISO 9001:2015: The exact assurance that quality products will be continually produced comes from the quality management system. According to the International Organization for

Standardization, a supplier must follow certain quality management principles to produce high-quality goods. These principles include putting the customer first, maximizing leadership, employee participation, and process approaches, committing to quality improvement, using factual data in decision-making, and developing relationships with suppliers. On the basis of such justification, it can be said that ISO is a system that assures the manufacturing process' rising quality. A control procedure is used during the continuous manufacturing process to ensure high-quality output. The manufacture of coffee is one economic activity that may use the ISO document. There will be a defined quality standard applied to every procedure (Vietgoglobal, 2022).

VietGAP (Vietnamese Good Agricultural Practices): To produce, harvest, and process agricultural goods in a way that satisfies a variety of standards, agricultural producers are guided by the rules, instructions, and processes known as VietGAP. This standard was used by producers to assure efficiency, food safety, product traceability, and environmental and health protection. Vietnamese coffee farmers are taught modern, efficient methods for their fields. The primary goals of new manufacturing methods are to safeguard their employees and the environment, as well as to increase sustainable revenue. VietGAP provides standards for the adoption of production techniques spanning food safety, environmental management, worker health, safety, and product quality, according to the Ministry of Agriculture and Rural Development. The standard is divided into 12 parts, including (accgroup, 2023):

- Site assessment and selection;
- Planting material;
- Soil and substrate management;
- Fertilizers and soil additives;
- Water and irrigation;
- Crop protection and use of chemicals;
- Harvesting and handling;
- Waste management and treatment;
- Worker health and welfare;
- Record keeping, recall, and traceability;
- Internal audit;
- Complaints and resolve complaints.

HACCP (Hazard Analysis Critical Control Point): A system called HACCP Certification confirms that a food company has created, documented, and put into practice systems and processes in line with HACCP. HACCP is essentially a method to assist in detecting and controlling any risks to food safety that might arise in the food industry. Different harvesting techniques might result in unpredictable variances in the product since coffee is manufactured in many different nations using many different ways.

GMP (Good Manufacturing Practice): A set of operating guidelines known as Good Manufacturing Practices (GMP) is used to guarantee the manufacture of safe and high-quality

food. Using GMP to guarantee that products are consistently manufactured and managed to quality standards is strongly advised by the US FDA and other regulatory authorities throughout the world. The basic sanitary and manufacturing standards required for the implementation of additional food safety management programs like HACCP and ISO 22000 are covered by GMP compliance.

There are other methods and systems that provide quality control over Vietnamese coffee, such as HALAL Certification, 4C (Common Code for the Coffee Community), RFA (Rainforest Alliance), and UTZ (UTZ Certified) (Vietgoglobal, 2023). In order to export their goods to markets under high safety requirements, companies must comply with the 4C (Common Code for the Coffee Community), VietGAP (Vietnamese Good Agricultural Practices), UTZ (UTZ Certified), and RFA (Rainforest Alliance) regulations. They make it simple to sell coffee to various markets and meet all consumer expectations (Vietgoglobal, 2023).

Compliance efforts have improved market access for Vietnamese coffee products within the ASEAN region. This has resulted in increased exports to neighboring countries, such as Thailand, Malaysia, and Indonesia. Vietnam's coffee industry has seen a noticeable improvement in the quality of its products (Nicholas., 2023). Consistency in quality and adherence to safety standards have contributed to consumer trust and a stronger market presence. In conclusion, Vietnam's coffee industry has made commendable strides in its journey to comply with ASEAN coffee standards. The government, industry stakeholders, and individual producers have worked collaboratively to align with these standards, resulting in improved market access and product quality (Nhân Dân, 2023). Despite the challenges, the industry's commitment to compliance reflects its dedication to long-term sustainability and competitiveness on the regional and global stages.

4.3. Challenges

Even though Vietnam has strong potential with a high rank among coffee exporters, the country still faces several challenges.

The industry is quite fragmented, with only 5% of crops being state-owned while the remaining 95% are privately owned (Standen & Falak, 2022, VICOFA, 2019). In addition, most of the private farms are owned by small-scale farmers, “equating to approximately 650,000 families cultivating coffee with approximately one hectare of land” (Standen & Falak, 2022). This means the production process fails to take advantage of economies of scale, and suffers from great disparities in investments, harvesting, and processing methods between households. Smallholder farms might also be unaware of the standards, especially updates on them. This might be due to their inability to access up-to-date information, and ASEAN regulations, documents, and guidelines being written in English. Hence, uneven quality of the yields is inevitable. Currently, processing done within each household is mostly dry processing due to its feasibility. For seeds dried in the sunlight in yards, the area might not be adequate, leaving seeds piling up or drying too quickly (Nhung, 2022) since they cannot immediately change the temperature. Coffee beans are then unevenly dried. Considering bigger establishments, most of the crops are bought from traders and agents, with only a few enterprises having processing factories (Nhung, 2022). At the same time, the largest coffee exporter - Brazil - has a concentrated processing and exporting sector (Caldarelli, Gilio & Zilberman), and factories are located near the cultivation areas.

Another notable problem is the lack of infrastructure and equipment. 160 coffee roasting facilities, 11 coffee blending facilities, and 8 instant coffee processing facilities are currently operating in Vietnam (Standen & Falak, 2022). The equipment and machinery for processing in small establishments and households are "still lacking and sketchy" (Nhung, 2022), and mostly are not updated modern ones (Standen & Falak, 2022). There are 113 coffee processing and exporting enterprises, but only one-third of the enterprises have processing factories. The rest have to buy from traders and agents (Nhung, 2022). The level of technology employed can be seen in the table below (from Nhung, 2022). As a result, deep processing methods to increase the value of coffee exports have not been applied widely, and ensuring compliance with detailed standards, including sizes, moisture content, pesticide residues, and so on is difficult. Implementing quality control measures and acquiring certifications are costly, and might be a serious financial burden for small-scale farmers.

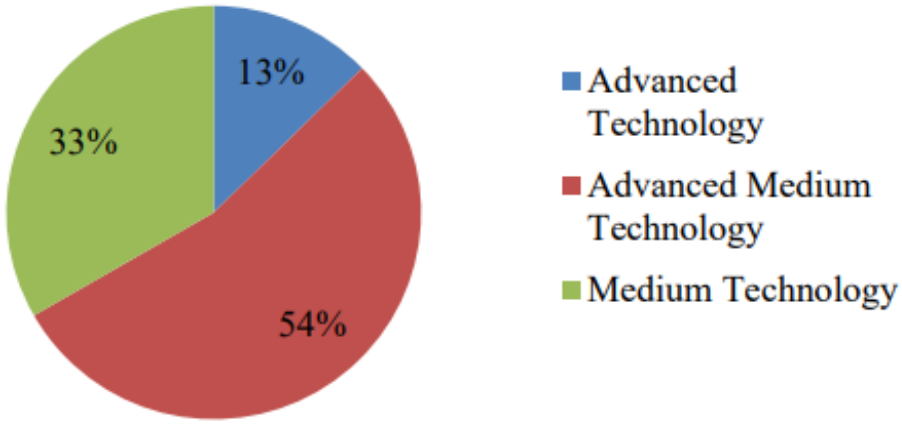

Figure 1. Level of technology use in coffee processing in Vietnam in 2020C

***Source**. The Role of Vietnam in the Global Coffee Value Chain, 2022*

5. Recommendations

Standardization is important because it helps to ensure that coffee beans meet certain quality standards. This is crucial for both consumers and businesses. Consumers want to know that they are getting a high-quality product, while companies need to be able to rely on the quality of the coffee beans they purchase (Huang et al., 2019). As a result, Vietnamese coffee farmers and exporters should continue their efforts to adapt and comply with the ASEAN standards.

However, standardization can also stifle innovation and creativity (Pillai & Ramakrishnan, 2023). In the coffee industry, this can lead to a loss of local coffee diversity. Local coffee diversity should be preserved since it provides consumers with a variety of different flavors and aromas to choose from. It also helps to support local coffee farmers and producers (Al-Ghamedi et al., 2023). Balancing standardization with preserving local coffee diversity is, therefore, of the utmost importance because it allows Vietnam to benefit from the economies of scale that come with standardization while also maintaining the unique flavors and aromas of its local coffees. Given

Vietnam's current achievements and challenges in complying with the ASEAN's standards for coffee beans, our group attempts to give some suggestions on ways Vietnam can achieve this goal.

The first thing for Vietnam to focus on and improve is the quality of Vietnamese coffee beans to meet both local and regional standards. This can be done by investing in research and development and providing training to farmers on best practices. Vietnamese coffee farmers and exporters must be educated about the ASEAN standards through workshops, seminars, and other outreach programs so that they understand the requirements of the standards and how to comply with them. Also, Vietnam could promote sustainable farming practices to support farmer cooperatives, which would help to protect the environment and ensure the long-term viability of Vietnam's coffee industry.

Secondly, a balance between standards and locality can be achieved by developing a system of certification that identifies and tracks coffee beans from specific regions or farms. Vietnam could develop a system of certification for coffee beans that are grown using traditional methods and meet ASEAN quality standards. This practice would allow coffee farmers to get a premium price for their beans, while also helping to preserve the country's coffee heritage. The certification system could be implemented by a government agency or an industry organization and it would need to be well-designed and implemented to be effective. It is important to make sure that the system is fair and transparent, and that it does not create undue burdens for coffee farmers and producers. An example of a country that has successfully applied this measure is Colombia. Besides The Codex Alimentarius by the Food and Agriculture Organization of the United Nations (FAO) and the World Health Organization (WHO) and the International Organization for Standardization (ISO), Colombia's coffee industry also has to comply with the standards of the Andean Community (CAN). The CAN is a regional economic bloc that includes Colombia, Ecuador, Peru, and Bolivia. The CAN has developed a number of standards for coffee beans, including standards for grading, packaging, and labeling. To preserve its variety of coffee beans, Colombia initiated the standards of the Colombian Coffee Federation (FNC). The FNC is a non-profit organization that represents Colombian coffee farmers and producers. It has developed a system of certification that is based on a number of factors, including the variety of coffee beans, the altitude at which it is grown, and the processing methods used. The FNC certification system is voluntary, but it is widely used by Colombian coffee farmers and producers. Coffee beans that are certified by the FNC are able to command a premium price in the market. The FNC certification system has been successful in helping to preserve Colombia's coffee variety and promote its coffee to consumers around the world. It has also helped to support Colombian coffee farmers and producers (International Labour Organization, 2021).

Our final recommendation for future actions is that Vietnam could work with ASEAN to develop different standards for different types of coffee beans. The main reason is that Vietnamese coffee farmers mostly cultivate Robusta coffee beans, while the standards by ASEAN are stated in general terms, not specific to any type. Robusta coffee beans are typically grown at lower altitudes and have a stronger flavor than Arabica coffee beans while Arabica coffee beans are grown at higher altitudes and have a more complex flavor than Robusta coffee beans (De Vivo et al., 2023). Given such differences in each type's characteristics, a common standard can cause differences in the taste and quality of each variety. Thus, ASEAN could develop different

standards for Robusta and Arabica coffee beans, the two most commonly cultivated coffee beans in the region. These standards could then be implemented by each member state according to their own needs and circumstances. By developing different sets of standards for different types of coffee beans, ASEAN could help to ensure that all types of coffee beans are produced to a higher quality standard. This would allow Vietnamese coffee producers to continue producing in accordance with regional standards while also preserving the unique qualities of Vietnamese coffee beans.

It is important to note that balancing ASEAN's standard for coffee beans with Vietnam's coffee industry will require cooperation from all stakeholders, including the government, farmers, exporters, and consumers. The government can play a leading role by providing financial and technical assistance to farmers, developing certification programs, and promoting Vietnamese coffee beans in the global market. Farmers can invest in quality improvement measures and adopt sustainable farming practices, while exporters can help by ensuring that their coffee beans meet the ASEAN standard and by developing new and innovative products. Consumers should support Vietnamese coffee brands and choose coffee beans that are produced sustainably.

By taking these steps, Vietnam can maintain its position as a leading producer and exporter of coffee beans, while also complying with ASEAN's standards and meeting the needs of regional consumers.

6. Conclusion

The implementation of ASEAN standards for coffee beans is a significant development for Vietnam, the world's second-largest coffee producer. The standards have the potential to improve the quality and safety of Vietnamese coffee beans, making them more attractive to consumers both domestically and internationally. Additionally, the standards could help to increase the value of Vietnamese coffee exports and create new jobs in the coffee sector.

On the other hand, the standards also pose some challenges for Vietnamese coffee farmers and exporters. Farmers may need to invest in new equipment and infrastructure in order to meet the standards while there are also risks of losing the local diversity and unique characteristics of the Vietnamese coffee beans.

The study hopes to have provided objective comparisons and assessments on how Vietnam ensures compliance with ASEAN coffee bean standards and given relevant recommendations so that the coffee industry moves forward in a way that ensures both regional standards and the distinctive qualities of Vietnamese coffee.

In addition to the aforementioned suggestions, the adoption of ASEAN standards for coffee beans is a lengthy procedure. It will take time for coffee exporters and farmers to adjust their business practices. By taking action now, Vietnam can guarantee that it is in a good position to benefit from the standards in the future and facilitate a stronger reputation and position for Vietnamese coffee beans in the regional and international markets.

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