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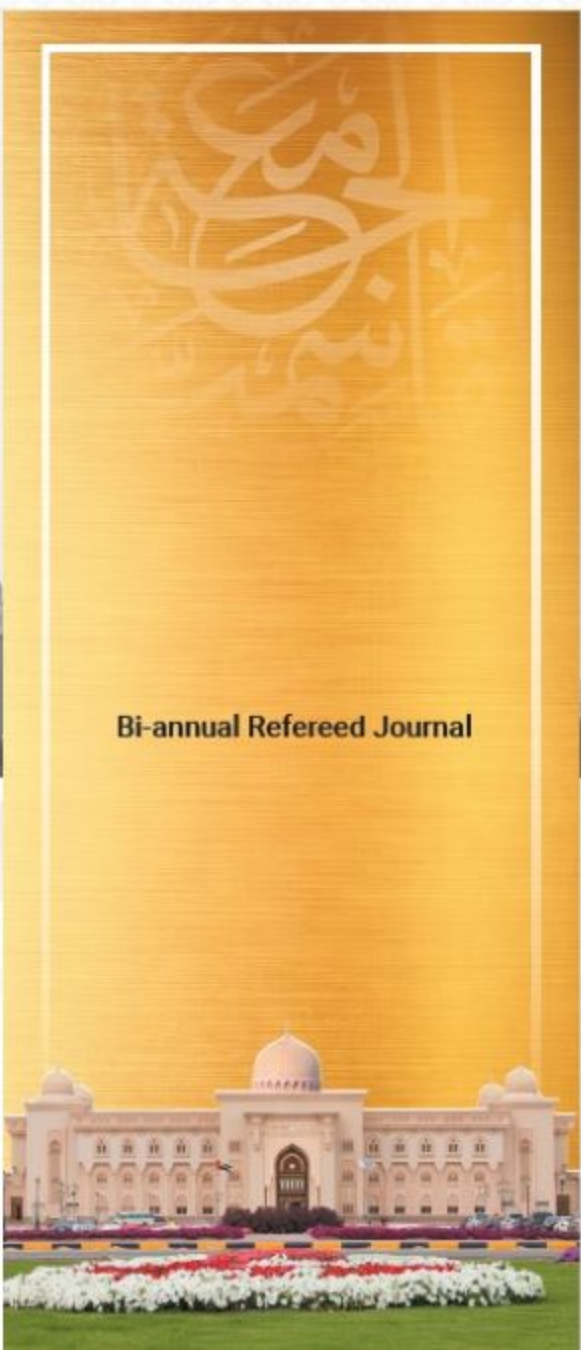


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الكشف عن الصكوك الصفراء: توظيف تجارة السلع الزراعية لتمويل  
الإسلامي وتغيير النمط في بورصات السلع

YELLOW SUKUK UNVEILED: HARNESSING  
AGRICULTURAL COMMODITY TRADE FOR ISLAMIC  
FINANCE AND PARADIGM SHIFT IN COMMODITY  
EXCHANGES<sup>1</sup>

حسين إرغون

جامعة كتوكاراتاي، تركيا

Hüseyin Ergun

KTO Karatay University

الملخص

تعيّن الطرق التقليدية على تجارة السلع الزراعية، مما يؤدي إلى فائض في الإمدادات بين الحين والآخر، بسبب الدورة الزمنية المتكررة. ويزيد نقص أنظمة التخزين المناسبة من تعقيد التحدي، مما ينتج عنه تقلبات في الأسعار وعدم الاستقرار في السوق، ولمعالجة هذه المشكلات، يقدم تقديم التخزين المرخص ونظام بورصة السلع المتخصصة فرصة لدمج تجارة السلع الزراعية مع الأسواق العالمية وإنشاء هيكل سوق قوي. كما يتضمن هذا الاندماج تحويل المنتجات الزراعية الموحدة المحتفظ بها في المستودعات المرخصة إلى إيصالات مستودعات إلكترونية (e-WhR)، بالإمكان استخدامها بوصفها أدوات أساسية للإنتاج والاستهلاك وأدوات الاستثمار. علاوة على ذلك، يُقدّم مفهوم مبتكر لـ "الصكوك الصفراء"، الذي يمثل أداة مالية رائدة يمكن استخدامها ضمن إطار الأسواق المالية الإسلامية بجانب القروض المصرفية التقليدية. وتسعى هذه الدراسة إلى بيان تطور تجارة

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السلع الزراعية، الصفقات الفورية المجرة في بورصات السلع، والجوانب الأساسية للمعاملات؛ حيث إنه من خلال التبني لهذه التقديرات، يمكن للقطاع الزراعي تحسين كفاءته، وسيولته، وعمق السوق العام حين يتبنى القدرة الرائدة للصكوك الصفراء.

## Abstract

Traditional methods dominate agricultural commodity trade, leading to occasional supply surpluses due to inherent periodicity. The lack of adequate storage systems further compounds the challenge, resulting in price volatility and market instability. To address these issues, introducing licensed Warehousing and a Specialized Commodity Exchange system offers an opportunity to integrate agricultural commodity trade with global markets and establish a robust market structure. This integration involves transforming standardized agricultural products held in licensed warehouses into Electronic Warehouse Receipts (e-WhR), which can serve as essential tools for production and consumption and investment instruments. Moreover, the innovative concept of "Yellow Sukuk" is introduced, representing a groundbreaking financial instrument that can be utilized within the framework of Islamic Capital Markets alongside conventional bank loan transactions. This study examines the evolution of agricultural commodity trade, spot transactions conducted in Commodity Exchanges, and the fundamental aspects of transactions. By embracing these advancements, the agricultural sector can enhance its efficiency, liquidity, and overall market depth while embracing the groundbreaking potential of Yellow Sukuk.

الكلمات الدالة: السلع الزراعية، التخزين المرخص، إيصالات المستودع الإلكترونية (e-WhR)، التمويل الإسلامي، الصكوك الصفراء

**Keywords:** Agricultural Commodity, Licensed Warehousing, e-WhR, Islamic Finance, Yellow Sukuk

## 1.0 Introduction

There has been a significant paradigm shift in the agricultural commodity trade industry in recent years. With the introduction of advanced technology, the rise of global markets, and the growing demand for sustainable and socially responsible investments, the way trade of agricultural commodities has undergone a fundamental change (Kalimullina & Orlov, 2011; Höllinger, Rutten & Kiriakov, 2009).

With the advent of advanced technology and the growing demand for sustainable investments, traditional commodity exchanges have struggled to keep pace with the rapid changes in the agricultural trade industry (Kovacevic, Zakic & Milovanivic, 2016; Kalimullina et al., 2011). Consequently, this has spurred the development of new platforms that prioritize transparency, efficiency, and accessibility for market participants, addressing the challenges faced by traditional exchanges. Commodity exchanges have played a vital role in the agricultural trade industry, providing a platform for buyers and sellers to trade commodities such as wheat, corn, soybeans, and other agricultural products. However, traditional commodity exchanges have faced challenges in keeping pace with the rapid changes in the industry. (Kovacevic, Zakic & Milovanivic, 2016; Kalimullina et al., 2011). This has led to the development of new platforms that provide better transparency, efficiency, and accessibility for market participants.

Moreover, the agricultural commodity trade industry has been influenced by the growing demand for sustainable and socially responsible investments (Foglie & Keshminder, 2022; Langly & Giugale, 2000). This shift in investor preferences towards environmental, social, and governance (ESG) factors has prompted agricultural commodity traders to focus on sustainable production methods and certifications that align with these criteria (Coulter & Onumah, 2002). The growing demand for sustainable and socially responsible investments has also influenced the agricultural commodity trade industry. With the increasing focus on environmental, social, and governance (ESG) factors, investors are

looking for ways to invest in commodities that meet these criteria (Foglie & Keshminder, 2022; Langly & Giugale, 2000). As a result, agricultural commodity traders increasingly focus on sustainable production methods and certifications that ensure their products meet these criteria (Coulter & Onumah, 2002).

In addition to the focus on environmental, social, and governance (ESG) factors, the rise of Islamic finance has also created new opportunities for commodity trade (Foglie & Keshminder, 2022; Langly & Giugale, 2000). This has further emphasized the significance of agricultural commodities as underlying assets, as exemplified by the Malaysian palm oil contracts, which have demonstrated their substantial economic impact and global relevance in the international market (Alam, Er, & Bagum, 2015; Carter, Finley, Fry, Jackson & Willis, 2007; Arouri, Ameer, & Nabila, 2013). Furthermore, the rise of Islamic finance has also created new opportunities for commodity trade. The significance of agricultural trade can be exemplified by the Malaysian palm oil contracts, which demonstrate agricultural commodities' substantial economic impact and global relevance in the international market (Alam, et al., 2015; Carter et al., 2007). Investigating palm oil futures and derivatives in Malaysia and Indonesia underscores the profound significance of agricultural commodities as underlying assets, highlighting their pivotal role in shaping and influencing financial markets. (Arouri, Ameer, & Nabila, 2013). Furthermore, the recent milestone achieved by BankIslami, Pakistan's premier Islamic financial institution, in structuring and disbursing Pakistan's inaugural Shariah-compliant Electronic Warehouse Receipt (e-WhR) financing highlights the profound importance of agricultural commodity trade and the utilization of agricultural commodities as underlying assets within the Islamic finance framework. This financing, facilitated through the repository system managed by Naymat Collateral Management Company Limited, demonstrates the growing recognition of agricultural commodities as critical components of the Islamic financial ecosystem (Pakistan Observer, 2022).

Amidst the paradigm shift in the agricultural commodity trade industry and the increasing demand for sustainable investments, the need for innovative Islamic capital market products becomes evident. One such pioneering concept is the 'Yellow Sukuk,' derived from prominent agricultural crops like Wheat, Barley, Corn, Rye, and Oat. The introduction of Yellow Sukuk makes a significant contribution to the field by creating new opportunities for investment and capital mobilization, while also promoting sustainable growth and development in agricultural markets within the framework of Islamic finance.

This article aims to explore the paradigm shift in the agricultural commodity trade industry and the potential it holds for Islamic finance. The challenges faced by traditional commodity exchanges and the role played by emerging platforms in the industry will be examined. Furthermore, the growing demand for sustainable and socially responsible investments and its impact on the agricultural commodity trade sector will be analyzed. Moreover, the concept of 'Yellow Sukuk,' which derives its name from key agricultural crops such as Wheat, Barley, Corn, Rye, and Oat, will be highlighted. Through uncovering the opportunities presented by Yellow Sukuk, this research aims to shed light on the untapped potential of integrating agricultural commodity trade within the realm of Islamic finance. The exploration of Yellow Sukuk paves the way for fresh avenues of investment and capital mobilization, fostering sustainable growth and development in agricultural markets while adhering to the principles of Islamic finance. The exploration of the paradigm shift in the agricultural commodity trade industry, the potential of Islamic finance, the challenges faced by traditional commodity exchanges, and the introduction of innovative concepts like Yellow Sukuk will contribute to the existing literature. By examining the evolving landscape of agricultural commodity trade, considering the influence of sustainable investments, and introducing new concepts that align with Islamic finance principles, this research expands the knowledge and understanding in these fields. It sheds light on untapped potential, highlights opportunities, and provides insights into the integration of

agricultural commodity trade with Islamic finance, thereby enriching the existing literature.

The remainder of this paper is organized as follows. Section 2 provides a review of the literature related to licensed warehouses, electronic warehouse receipts, and SRI (Sustainable and Responsible Investment) Sukuk. Section 3 brings up the methodology used in the research. Section 4 discusses the role of licensed warehouse systems and the paradigm shift in agricultural commodity trade. Section 5 examines the relevance of Islamic finance to agricultural commodity trade. Section 6 discusses the potential of electronic warehouse receipts as a capital market instrument, specifically for "Yellow Sukuk." Section 7 concludes the paper by summarizing the essential findings and implications for the agricultural commodity trade industry.

## **2.0 Literature Review**

This chapter provides a comprehensive review of the literature related to agricultural commodity trade. The review serves as a background for a better understanding of the main body of the study, including topics on (1) agricultural commodity trade, (2) Licensed warehouse systems, and (3) SRI (Sustainable and Responsible Investment) Sukuk's.

### ***2.1 Agricultural Trade***

Agricultural commodity trade has been used to exchange tradable agricultural products in physical or electronic environments. Due to the characteristics of the products, they generally reach the end consumer by processing. Products such as wheat, corn, barley, cotton, beet, tobacco, and olive are processed in industrial establishments with technological infrastructure and become ready for consumption. The fact that these products are subject to trade has always been on the agenda all over the world due to the unlimited need for food and food-based final products.

The formation of derivative markets and the widespread use of derivative instruments started with agricultural products (Ersoy, 2011). One of the earliest examples of futures contracts can be traced back to the Dojima Rice Exchange in Japan in 1679. The Dojima Rice Exchange, located in Osaka, facilitated the trading of rice futures contracts, which allowed buyers and sellers to agree upon a future price for rice delivery. These contracts provided a mechanism for hedging against price fluctuations and mitigating risks associated with the volatile rice market. Establishing the Dojima Rice Exchange and utilizing futures contracts marked a significant milestone in the development of organized futures markets (Wakita, 2001; Memiş & Keskin, 2017). The first stockbroking practice, in which manufacturers organized contracts and guarantees, started in Chicago in 1848. The farmers and the traders who bought these products, who had trouble getting the product to the market from the frozen rivers during the harsh winter months, started to trade with contracts representing the products. The organized market, established by 82 traders for the first time, was named CBOT (Chicago Board of Trade) (Lambert, 2011).

Numerous instances highlighting agricultural commodity trade can be observed across various regions worldwide. Notably, a prominent historical example in Islamic finance can be traced back to the era of Prophet Yusuf (AS) and in elucidating the interpretation of the king's dream, Prophet Yusuf (AS) prophesied seven years of abundance followed by seven years of famine. Consequently, he emphasized the imperative need to store and manage the trade of agricultural products (Surah Yusuf, Verses 43-74). This historical account underscores the enduring pursuit of storing and commercializing agricultural products, as it remains a critical domain of continual human endeavour. Moreover, the significance of agricultural trade and trade security has been magnified within the framework of economic development and progress across Muslim nations (Çiçek, 2014; Halim, 2016).

Drawing inspiration from the Holy Quran, specifically verse 47 of Surah Yusuf, a profound example sheds light on the importance of agricultural trade and the strategic storage of agricultural commodities for sustainable economic stability and resilience.



قَالَ تَزْرَعُونَ سَبْعَ سِنِينَ دَأَبًا فَمَا حَصَدْتُمْ فَذَرُوهُ فِي سُنْبُلِهِ إِلَّا قَلِيلًا مِّمَّا تَأْكُلُونَ

*Yusuf replied, "You will plant 'grain' for seven consecutive years, leaving whatever you will harvest in the ear, except for the little you will eat".*

Quran is cited as an example of the long-standing practice of storing grains in their ears. This storage method is still used today and has resulted in less mold and pest damage and greater resistance to quality loss compared to storing grains without ears. In light of the information and documents in the historical development of storage, especially in the holy books, it is understood that the Prophet Yusuf (AS) pioneered in laying the foundations of modern silos with both the storage construction technique and the storage method of grains and also bartering the storage foods with livestock (Kılıç, 2018).

## 2.2 Licensed Warehouse System

A Licensed Warehouse System refers to a regulatory framework or program established by a government or governing body to oversee the operation and management of licensed warehouses. These warehouses are authorized to store and handle certain goods or commodities, typically those subject to specific regulations, such as agricultural products, petroleum, chemicals, or hazardous materials.

The Licensed Warehouse System ensures the proper storage, handling, and movement of goods within the warehouse facilities. It helps maintain quality control, prevent adulteration or contamination, and enforce compliance with applicable laws and regulations. The licensing process typically involves inspections, compliance checks, and adherence to specific standards and guidelines. (Höllinger et al., 2009) Licensed warehouses often play a crucial role in supply chains, acting as intermediate storage points for goods before they reach their final destinations. They provide a secure and regulated environment for the storage of goods, often offering facilities such as temperature control, specialized equipment, and security measures. The licensing authority or governing body overseeing the licensed warehouse system sets requirements and guidelines for warehouse operators. These may include record-keeping, inventory management,

reporting, security protocols, and safety measures. The licensing process helps ensure that warehouses meet the necessary standards and operate in a manner that protects the integrity and quality of the stored goods.

Many academic studies demonstrate the role of licensed warehouses and electronic warehouse receipts. The importance of these two bodies is mentioned. Warehouse receipts are essential in the agribusiness sector as they provide greater security for Warehousing, enable delayed sales, and ensure commodities are stored in regulated public warehouses (Onumah, 2016; Kovacevic et al., 2016; Höllinger et al., 2009). The researchers recommend establishing a public warehouse system with licensing procedures, an inspection body, and an indemnity fund uniquely for agricultural products. The system should be based on legislation and developed with the Central Bank to provide the best credit rating for loans against warehouse receipts.

Electronic warehouse receipts and licensed warehouses are crucial for enhancing transparency, accountability, and security in storing and trading goods as shown in Table 1. They enable access to financing, facilitate efficient trading, mitigate risks, ensure quality assurance, and promote regulatory compliance in storing and handling goods (Ergun, 2021).

### *2.3 SRI (Sustainable and Responsible Investment) Sukuk*

In the realm of Islamic finance, Sustainable and Responsible Investment (SRI) Sukuk has emerged as a groundbreaking avenue that integrates ethical considerations with financial investments. By aligning Islamic principles with sustainability objectives, SRI Sukuk represents a transformative approach to capital mobilization, fostering economic growth while addressing environmental, social, and governance (ESG) concerns (Khouildi & Kassim, 2018; Foglie & Keshminder, 2022). This section explores the profound potential of SRI Sukuk, highlighting its role in promoting sustainable development, enhancing social welfare, and contributing to a more responsible and inclusive financial landscape.

Table 1: Advantages of Warehouse Receipts

Aspect	Description
Security and Accountability	Provides a secure and tamper-proof record of ownership and possession - Enhances transparency and accountability
Financing and Trade Facilitation	Can be used as collateral for financing - Enables access to financing for farmers, traders, etc.
Market Efficiency	Facilitates efficient trading - Reduces transaction costs
Risk Mitigation	Ensures proper storage conditions - Mitigates risks of spoilage, damage, etc.
Quality Assurance	Implements quality control measures - Ensures goods meet specified standards and regulatory requirements
Regulatory Compliance	Subject to government oversight and compliance with relevant regulations - Ensures storage and handling adhere to established standards

Source: Ergun (2021)

The diverse landscape of Sustainable and Responsible Investment (SRI) Sukuk presents a range of innovative financing options that integrate Islamic finance principles with sustainability objectives. In this regard, understanding the various types of SRI Sukuk is essential, as each type offers a unique avenue for channelling funds toward impactful projects (Foglie & Keshminder, 2022; Azman & Ali, 2016). Table 2 below describes the distinct categories of SRI Sukuk, highlighting their respective focuses and providing notable examples

of their application in financing environmentally sustainable, socially beneficial, and economically responsible initiatives.

SRI Sukuk types encompass various categories that cater to sustainable and responsible investments. They include sukuk for environmentally friendly projects, social initiatives, sustainable development, climate change, marine conservation, charitable endowments, and sustainable infrastructure (Foglie & Keshminder, 2022).

### **3.0 Methodology**

This research aims to explore and analyze the licensed warehouse system, electronic Warehouse Receipts (e-WhRs), and a new source of socially responsible investment (SRI) sukuk known as Yellow Sukuk. The objective is to understand the concepts and gather relevant data in these fields, with a specific focus on designing a Yellow Sukuk model that utilizes agricultural commodities represented by e-WhRs.

The methodology employed in this research primarily relies on the collection and analysis of secondary data. The secondary data will be obtained from a wide range of sources, including previous research studies, academic journals, industry reports, newspaper articles, and government reports. Through desk research, a comprehensive review of the literature will be conducted to identify and extract the most relevant information and data related to the licensed warehouse system, e-WhRs, and SRI Sukuk.

The analysis will involve a detailed examination of the existing research, industry practices, and regulatory frameworks surrounding the licensed warehouse system and e-WhRs.

Table 2 – SRI Sukuk Types

SRI Sukuk Type	Description	Example
Green Sukuk	Focuses on funding environmentally friendly projects, such as renewable energy and sustainable infrastructure.	Malaysia's Tadau Energy issued Green Sukuk to finance solar power projects. ( <a href="http://www.tadau.com.my">www.tadau.com.my</a> )
Social Sukuk	Aims to finance projects addressing social issues and benefiting communities, like affordable housing or education.	Islamic Development Bank issued Social Sukuk to support development projects in member countries. ( <a href="http://www.isdb.com">www.isdb.com</a> )
Sustainable Development Goals (SDG) Sukuk	Aligned with specific United Nations SDGs, funding projects contributing to their achievement.	Indonesia issued SDG Sukuk to support projects related to education, healthcare, and clean energy (Fitrah & Soemitra, 2022).

Sustainability Sukuk	Issued by entities committed to sustainability, funding initiatives to improve environmental and social practices.	Majid Al Futtaim issued Sustainability Sukuk to promote sustainable business practices. (Majid Al Futtaim, 2019)
Blue Sukuk	Specifically focuses on marine and ocean-related projects to protect and preserve the marine ecosystem.	Seychelles issued Blue Bond to finance marine conservation and sustainable fisheries initiatives. (The World Bank, 2018) Also there are studies regarding blue sukuk on the literature. (Maulana, Zahro, & Sholikah, 2021), (Rusydiana & Irfany, 2021)

This will provide insights into the functioning, benefits, and challenges associated with these systems in the context of agricultural commodity trade. Additionally, a thorough review of the literature on Yellow Sukuk will be conducted to understand its underlying principles, structure, and potential applications in the agricultural sector.

By utilizing secondary data and conducting a rigorous desk research approach, this study aims to contribute to the existing literature by providing a comprehensive understanding of the licensed warehouse system, e-WhRs, and their role in facilitating the issuance and trading of Yellow Sukuk. The findings of this research will inform the design of a Yellow Sukuk model that integrates agricultural commodities represented by e-WhRs, offering insights into the potential benefits, challenges, and opportunities associated with this innovative financial instrument. The methodology employed in this research ensures a systematic and in-depth analysis of the licensed warehouse system, e-WhRs, and Yellow Sukuk, thereby adding value to the existing body of knowledge and contributing to the development of sustainable and socially responsible investment practices in the agricultural commodity trade industry.

## **4.0 Discussion**

### *4.1 Licensed Warehousing System (LWS) and Paradigm Shift in Agricultural Trade*

In the process that started with the trading of certificates on agricultural commodities at the Dojima Rice Exchange in Japan at the end of the 17th century and continued with the futures exchange established in Chicago in 1848, the purchase and sale of agricultural products in forward or cash and transactions aimed at protecting against cyclical price fluctuations, started spreading worldwide (Odyakmaz & Arısoy, 1994; Chambers, 1981).

Licensed Warehousing, which has been supported especially by governments in terms of the preservation of strategically important products in line with the needs of the country, in order to eliminate the negative effects of fluctuations that may occur in the supply and demand of agricultural products and commodities, to facilitate

agricultural trade, and to ensure that the products delivered are of standard quality, from the beginning of the 1900s to the present. The system (Licensed Warehousing System- LWS) continues to develop through Licensed Warehouses and Product Exchanges (Coulter & Onumah, 2002).

LWS, widely used in developed countries such as the USA, UK and Canada, has started to be accepted by underdeveloped and developing countries since the 1990s to regulate agricultural markets, provide agricultural development and deepen agricultural trade (Höllinger et al., 2009). In terms of LWS's contribution to the country's economy and social welfare at the desired level, it is vital to enable an efficient and qualified product trade by establishing the necessary legal infrastructure by the competent authority, determining the standards, predicting possible risks, minimizing and managing risks effectively, and most importantly, providing a reliable storage service by designing a transparent structure.

The issues that are found to be lacking in terms of a free market or LWS in the studies conducted in the literature and that need to be overcome for success; are transparency, appropriate warehousing infrastructure, competition, market knowledge, legal and regulatory support, small-scale producers and bargaining power, lack of necessary skills, lacking or weak market institutions, and appropriate loans is presented in Onumah (2016) and Robins (2016).

The US Department of Agriculture (USDA) uses four features of the LWS system. The ministry uses product bills in support and lending transactions, and producers can use long-term loans with these bills, thus accessing finance throughout the year. It ensures that reserve records are kept healthy by having product and stock information in both public warehouses and warehouses operated by the private sector. Production planning is provided if agricultural products are used in industrial production, such as flour, feed, sugar, etc.

Producers can make futures transactions and use it as a supporting document with L/C (Letter of Credit) in export transactions (Lacroix & Varangis, 1996). In countries where the LWS system is successfully implemented, the stakeholders that make up the system act in a coordinated and integrated structure (Tosun et al., 2014). Storing the quality and quality of the product subject to trade, in cash



or through certificates, in a healthy and reliable environment in accordance with the standards in the Product Exchanges strengthens the trust of the buyer and seller parties in the system.

Licensed Warehousing; the classification and quality of agricultural products suitable for storage and which can be standardized are determined by laboratories called authorized classifiers, their storage in healthy environments with modern infrastructure, the trade of these products through product certificates representing the ownership of the product; It is a system that envisages being made in a product speciality exchange that can also operate in the international arena (Nadirgil, 2017; Höllinger et al., 2009; Coulter, 2009).

In short, licensed Warehousing; is a system that contributes to price stability, facilitates the trade of agricultural products, and facilitates the supply of products needed for production. Suitable for storage in this system, there are products that can be standardized, such as cereals, pulses, cotton, tobacco, hazelnuts, and oilseeds. Effective coordination of licensed warehouses and other stakeholders, primarily authorized classifiers, integration, control, and auditing of their work and processes following the legislation, effective risk management in transactions and processes, for the safe realization of e-WhR trade to be traded in the Agricultural Products and Commodity Specialized Market with the Licensed Warehouse System (Höllinger et al., 2009). It is possible to provide qualified added value to the country's economy by enabling the system to operate safely and transparently, protecting the rights and obligations of the parties, bringing the efficiency of the country's resources to the optimal level with an effective system, and encouraging income generation and efficient production.

Although the relevant legislation and regulations outline the procedures for accepting compliant products, analyzing them by authorized classifiers, determining their qualifications through warehouse experts, issuing accurate e-WhRs through the CSD system, and ensuring reliable storage, there are implementation challenges in the trading and withdrawal processes on platforms faced by depositors in licensed warehouses (Tosun et al., 2014).

Trust is a priority for LWS, which is still in the development stage and is being tried to be expanded. For LWS, the central pillar of trust is; it

is the analysis of the product's compliance with international standards and its storage in accordance with the standards. The most significant capital in trade is reputation and trust. A system that cannot be trusted in product storage and protection and access to finance cannot be sustainable. Trust is crucial, especially for producers (Van de Velde, Faber, & Koster, 2002).

They are ensuring a transparent and reliable environment in the warehousing system, ensuring that the system stakeholders access accurate and sufficient information in a timely and effective manner, ensuring the sustainability of the system by the full and effective implementation of the system rules, optimally realizing the returns and gains of the parties in the agricultural product and commodity trade, protecting the rights of the parties and providing deep insight.

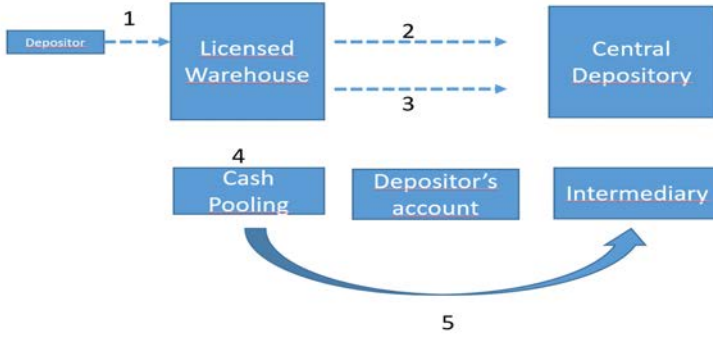
Regarding agricultural commodities, it takes work to maintain price stability in cases where there is excess supply during the harvest period. Producers who want to sell their products at their value or higher may store their products in warehouses to wait for demand to increase (Ağırkaya, 2017).

A new type of trade is developing, which operates with a more modern infrastructure than classical markets. With the LWS, futures transactions in agricultural commodities have been paved, and delivery-based transactions have been facilitated (Memiş & Keskin, 2017). The existence of electronic warehouse receipts (e-WhR) will pave the way for the formation of underlying asset markets and their use as halal investment tools.

#### *4.1.1 e-WhR System*

In the realm of modern commerce, the integration of electronic warehouse receipts and the establishment of licensed warehouse systems have ushered in a new era of efficiency and transparency in the storage, tracking, and trading of goods (Putri, 2021). These groundbreaking developments blend traditional warehousing practices with cutting-edge digital technologies, empowering businesses and stakeholders with enhanced operational capabilities. By embracing electronic documentation and implementing standardized procedures, electronic warehouse receipts and licensed warehouse systems have

emerged as indispensable tools for fostering streamlined supply chains and trust within the global marketplace.



Source: Ergun (2021)

Figure 1: e-WhR System

The process flow:

1. The depositor delivers the products to the Licensed Warehouse Operator.
2. Product information, analyzed by the Authorized Classifier is transmitted to the Central Registry Agency (CRA).
3. The Licensed Warehouse Operator transmits the information regarding the products received from the member and the depositor to the CRA.
4. Product receipts are created in the pool account through the export transaction conducted by the Licensed Warehouse Operator (within the limit determined by the Authorized Classifier).
5. The Electronic Warehouse Receipts (e-WhR's) created in the pool account of the Licensed Warehouse Operator are automatically transferred to the depositor's account at the brokerage firm or bank notified by the depositor upon delivery.

## 4.2 Agricultural Commodity Trade in the Framework of Islamic Economy

Islam places great emphasis on the crucial role of agriculture and the production of crops, recognizing their significance in sustaining human life and fostering societal development.

As an example from the Holy Quran, Allah (SWT) invites contemplation in Surah Al-Bakara (2:164), Surah Al-Anbiya (21:30), Surah Al-Yunus (10:24) with the verses:

*"The example of those who spend their wealth in the cause of Allah is that of a grain that sprouts into seven ears, each bearing one hundred grains. And Allah multiplies 'the reward even more' to whoever He wills. For Allah is All-Bountiful, All-Knowing."*

*"Do not the Unbelievers see that the heavens and the earth were joined together (as one unit of creation), before we clove them asunder? We made from water every living thing. Will they not then believe?"*

*"The example of worldly life is just like the water We sent down from the sky, then the vegetation of the earth grew with it, which is (meant to be) eaten by men and cattle, until when the earth took on its ornament and was fully adorned, and its people thought that they had control over it, Our command came to it at night or by day, and We turned it into a stubble as if it had not been there a day earlier. This is how we elaborate the verses for a people who reflect."*

Agricultural production is a form of production that started with the first emergence of humanity and continued without losing its importance, it is the subject of trade and has strategic importance (Arouri et al., 2013). With the industrial revolution, industrial production has also significantly changed the agricultural sector, and concepts such as means of production, yield, and agricultural financing have become the subject of discussion. Whether it is animal products (livestock, dairy, honey, silk production, etc.) or ground products (pulses, grains, vegetables etc.), the enterprises that carry out these productions are called agricultural enterprises.

Agricultural production by agricultural enterprises varies according to natural conditions, climatic factors, and seed and input quality. These variations increase the financial risks of agricultural enterprises. It is at a disadvantage compared to other activities and sectors regarding the provision, use, management, and repayment of monetary funds (Chambers, 1981; Çetin, 2014). In addition, fragmented land structure increases the number of agricultural enterprises. The small size of the enterprises causes them to focus on efficiency rather than quality while producing, making it necessary to sell all the products produced as soon as possible. This periodic causes the acceleration in supply and demand, while the increase in supply pulls prices down, therefore preventing agricultural enterprises from obtaining the expected and desired earnings. On the other hand, when other risks, such as climatic conditions and input quality, are revealed, the risks of enterprises in this area increase and complicate their situation.

In the Islamic economy and the way of life, there is such a broad area that an answer to every problem can be found. Because the Islamic economy has determined the main principles and paved the way for trade and partnership within the framework of these principles. (Kalimullina et al., 2011). In addition, the storage of perishable products such as cereals and pulses produced and the creation of documents belonging to the stored products are examples that we have encountered and applied in the history of Islam.

According to what is reported in the Qur'an in the surah of Yusuf, a dream that the king of Egypt saw. Yusuf has commented that there will be an abundance in the field of agriculture and animal husbandry in the first seven years and that there will be challenging years in this regard in the next seven years. Hz. Yusuf (AS) was responsible for economic affairs and the treasury. As an economic precaution, society was encouraged to save, and agricultural products purchased by the state through consignment or under the ground were

taken under protection. Bearer documents representing these products and determining their quantities and qualities to those who deliver their products to the warehouses were later used in purchasing and selling goods, serving as a kind of money. In the verses, it is stated that there were seven years of famine and seven years of abundance in the time of Hz. Yusuf (AS). It is known that Hz. Yusuf (AS) was the head of the treasury and took the products to the warehouses to keep them in the ears. Döndüren, (2014) stated that J. Dobrestberger, in his research that banknotes were circulated in 1600 BC. It is thought that the receipts given to the owners who keep their products in the warehouses built by Yusuf (AS) are used for endorsement.

The traders, including Hz. Ebu Bekir were given duties, and it was recommended to buy products from the surrounding regions and bring them to the narrow areas. Hz. It is known that during the famine that occurred during the time of Omar, the goods brought from Syria, Egypt, and Palestine were stored in the silos created in the port of Car, and receipts were given to the owners in return for their goods (Kallek, 2015). According to Shariah, there may be different approaches to storing products and trading stored products. In this study, we elaborate on three storage methods.

- i- Storage as Qard al Hasan
- ii- Storage for own products
- iii- To place in escrow

Qard al Hasan, a type of storage, continues to be practiced today, where farmers deliver their harvested goods to any warehouse operator (Saqib, et al., 2015). While the warehouse has the right of use over the stored products, at the end of the storage period, the owner retains the option to retrieve the products from the warehouse. Qard can be applied to various items such as cash, gold, silver, barley, wheat, oil, honey, eggs, and walnuts, which can be weighed, measured, and found in the market.

Qard is a significant financial source for warehouse owners, as it grants them the ability to convert the stored resources into cash

and utilize them (Saqib et al., 2015). In cases where the owner has insufficient products upon return, they can always obtain the standard product from the market. Moreover, when a public institution undertakes such storage, it can support flour mills and bread producers, enabling interest-free financing resources in the food sector and reducing the cost of food products.

Producers can store their products in warehouses (Döndüren, 2014). The point to be considered here is not to fall into profiteering (black market) and to be careful not to delay the market supply, causing a price increase. Since agricultural products are supplied in specific periods, it is normal to have fluctuations in prices in the market. If a producer does not aim to store all the products grown in his region and delay their supply to the market, he can store his product in the free market on his behalf and carry out sales transactions whenever he wants.

The third method, escrow release, allows manufacturers to securely store their products in warehouses for a fee and retrieve them as needed. Government agencies often conduct escrow transactions. In this storage arrangement, if a rental fee is determined, a compensation fund should be established to cover any potential damage or loss. Unlike absolute power of attorney, escrow contracts serve the purpose of protecting the property without transferring ownership, making them a unique form of power of attorney. (Karaman, 2017).

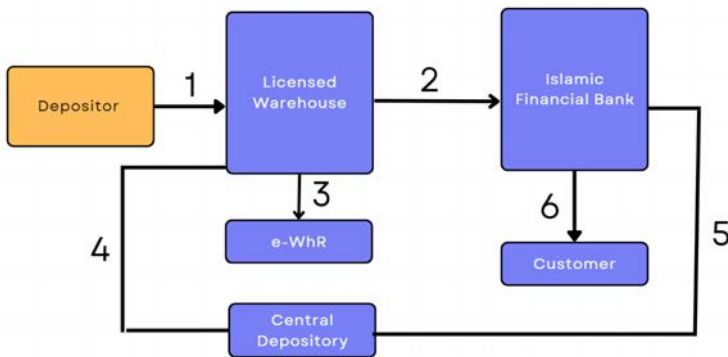
#### *4.3 Yellow Sukuk: Revolutionizing Capital Markets through e-WhR Innovation*

Electronic warehouse receipts can be utilized as capital market instruments. In many jurisdictions, electronic warehouse receipts are recognized as valid and tradable documents that can be used for financing purposes in capital markets (Indhumanthi et al., 2019; Siadari et al., 2021). They offer several advantages as financial instruments. In this context, it is possible to structure "Yellow Sukuk",

in which the e-WhR system is used as an underlying asset and Islamic capital market instrument. The advantages of utilizing e-WhR as an underlying asset for Sukuk structuring are as follows;

#### 4.3.1 Collateral for Financing

e-WhRs can serve as collateral for obtaining loans or credit from banks and financial institutions. They represent the underlying goods stored in licensed warehouses, and their electronic format ensures transparency, security, and ease of transfer. Lenders can accept electronic warehouse receipts as proof of ownership and value, enabling borrowers to access financing based on the stored goods' worth.



*Source: Author's Own*

Figure 2: Collateral for Financing

The process flow:

1. Depositor brings the agricultural goods to the Licensed Warehouses and the creation process starts.



2. **Verification of Licensed Warehouses:** Banks and financial institutions establish partnerships with licensed warehouses that comply with industry standards and regulations.
3. **e-WhR Creation:** When goods are deposited in these licensed warehouses, electronic warehouse receipts (e-WhR) are generated. These receipts accurately capture the details of the stored goods, including ownership, quantity, quality, and other relevant information.
4. **Transparent Recording and Storage:** The licensed warehouse operators ensure the proper recording and secure storage of e-WhRs in a centralized electronic database (Central Depository). This database maintains a transparent and tamper-proof record of all e-WhRs issued.
5. **e-WhR Validation:** Lenders verify the authenticity and validity of the e-WhRs by cross-referencing the information stored in the centralized electronic database. This process ensures that the e-WhRs are legitimate and represent actual goods stored in licensed warehouses.
6. **Financing Approval:** Upon successful validation of the e-WhRs, lenders accept them as proof of ownership and value. Based on the assessed worth of the stored goods, borrowers are granted access to financing in the form of loans or credit. The electronic format of the e-WhRs ensures secure and seamless transfer between parties. Lenders have the flexibility to transfer the collateral to other financial institutions if needed while maintaining transparency and security.

#### *4.3.2 Securitization*

e-WhRs can be securitized, meaning they can be pooled together and transformed into tradable securities. This process involves packaging multiple receipts as a financial instrument and selling them to investors. Investors can then earn returns based on the performance of

the underlying goods, making it an investment option tied to the value and movement of physical commodities.

- i) **Pooling of e-WhRs:** Multiple e-WhRs representing different underlying goods stored in licensed warehouses are aggregated together to form a pool of receipts (Kovacevic et al., 2016). These e-WhRs may belong to various owners or entities.
- ii) **Due Diligence and Valuation:** The pool of e-WhRs is subjected to due diligence and valuation processes to assess the quality, quantity, and value of the underlying goods. (Kovacevic, et al., 2016) This step ensures transparency and accuracy in determining the potential risks and returns associated with the securitized instrument (IFC, 2013).
- iii) **Structuring the Security:** The securitization structure is designed based on due diligence and valuation outcomes. This includes determining the size and composition of the pool, creating tranches with different risk-return profiles, and establishing the rights and obligations of investors. (Gordon & Gebhardt, 1999).
- iv) **Issuance of Tradable Securities:** The securitized e-WhRs are transformed into tradable securities, typically in the form of Yellow Sukuk, yellow bonds, notes, or certificates. These securities represent fractional ownership or entitlement to the pool of e-WhRs.
- v) **Offering to Investors:** The securities are offered to investors, such as institutional investors, asset managers, or individual investors, through private placements or public offerings (Coulter, 2009), (Höllinger et al., 2009). Marketing and distribution efforts are undertaken to attract potential buyers.

- vi) **Trading and Secondary Market:** Once the securities are issued and listed, they can be traded on secondary markets, such as stock exchanges or alternative trading platforms. Investors can buy, sell, or transfer their holdings, providing liquidity and flexibility. (Ergun, 2021)
- vii) **Returns and Performance:** Investors earn returns based on the performance of the underlying goods represented by the e-WhRs. The returns may come from periodic distributions, capital appreciation, or other structured mechanisms tied to the value and movement of physical commodities.
- viii) **Monitoring and Reporting:** Ongoing monitoring and reporting mechanisms are established to track the performance of the securitized e-WhRs. This includes regular updates on the value of the underlying goods, any changes in risk factors, and compliance with regulatory requirements.
- ix) **Redemption or Maturity:** The securities may have a predetermined maturity date or redemption option. At the end of the maturity period or upon redemption, investors receive the final payment or settlement based on the performance of the securitized e-WhRs.
- x) **Risk Management and Mitigation:** Throughout the process, risk management practices, such as diversification, hedging, and credit enhancement, are employed to minimize risks associated with the securitized instrument and protect the interests of investors. (Tosun, et al., 2014)

Furthermore, to illustrate the practical application of securitization in the context of e-WhRs, a potential *modus operandi* for Yellow Sukuk can be outlined.

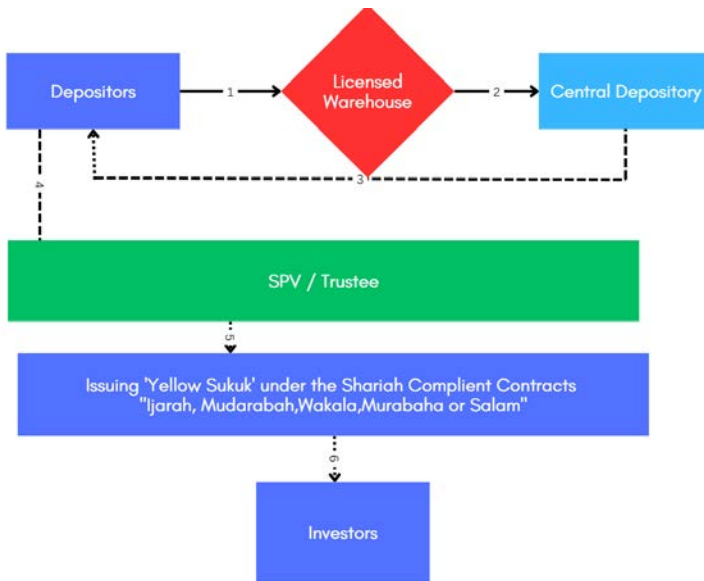


Figure 3: Issuing Yellow Sukuk

The process flow:

1. Farmers or traders deposits their commodities in a LW and receives e-WhR that specifies the quantity and the quality of the commodity.
2. Data transferred to CDS for recording e-WhR.
3. e-WhR is registered in CDS that records the ownership and transfer the receipts.
4. The depositor sells (or leases) the e-WhR to a Special Purpose Vehicle / Trustee act as the issuer of the 'Yellow Sukuk'.
5. SPV/Trustee issues 'Yellow Sukuk' on a Shariah-compliant contracts, such as Ijarah, Mudarabah, Wakala, Murabaha or Salam.

6. The ‘Yellow Sukuk’ represents a proportionate beneficial ownership in the e-WhR and entitle the investors to receive periodic payments from the SPV based on the underlying contract.

## **5.0 Conclusion**

The agricultural sector is currently experiencing significant advancements in commodity trade facilitated by financial technologies (FinTech). The integration of financial markets with technology has resulted in fast, reliable, and virtual transaction environments. To ensure transaction speed and confidence, depositors (manufacturers, traders, industrialists, and investors) must conduct their transactions through platforms that digitally store all relevant commodity information. One of these regulated platforms is the Licensed Warehouse System where commodities are stored, and their ownership is documented. This Warehouse System enhances the credibility of the agricultural commodity trade, fosters trust among market participants, facilitates financing options, and ensures the integrity of commodity transactions.

The adoption of Electronic Warehouse Receipts (e-WhR) revolutionizes the agricultural commodity trade by enhancing efficiency, accessibility, and transparency. Electronic Warehouse Receipts offer benefits such as easy access to transaction records, reduced fraud risks, real-time traceability of commodities, improved financing opportunities, and integration with financial technologies. The utilization of e-WhRs is significant in the context of Islamic Capital Markets, aligning with the principles and requirements of Shariah-compliant finance. The e-WhRs facilitate the execution of Islamic financing contracts, such as Murabaha and Tawarruq, which involve the sale of commodities or assets with deferred payment terms or financing arrangements. The use of e-WhRs simplifies the process of documenting and verifying the underlying assets, provides a reliable

digital representation of the underlying commodities, such as "Yellow Sukuk."

Policymakers should focus on implementing a Licensed Warehouse System to ensure efficient and transparent trading processes. They should also encourage the adoption of Electronic Warehouse Receipts (e-WhRs) to enhance accessibility, transparency, and risk management, among others, which could drive the growth and development of the agricultural commodity trade industry and Islamic Capital Markets.

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