

## How RWA is Reshaping the Agricultural Asset Landscape

### New Life for Fields on the Chain, Free Flow of Value

As blockchain technology and financial innovation deepen their integration, the tokenization of real-world assets is moving from concept to practice. And when RWA meets agriculture—humanity's oldest industry—a profound asset revolution is quietly emerging in the silent fields.

According to industry analysis, the RWA market achieved approximately 130% growth over the past three years, its scale leaping from \$10 billion in 2023 to \$23.39 billion in 2025. However, agricultural assets account for less than 3% of this market, starkly contrasting with the global agricultural asset scale of approximately \$27 trillion.

This enormous disparity indicates that the tokenization of agricultural assets holds unprecedented opportunities and potential.

#### 1. The Agricultural Dilemma: Trillions in Dormant Assets and Value Circulation Challenges

The agricultural sector has long faced the predicament of "trillions in dormant assets." It possesses asset potential exceeding 500 trillion, but most of these assets remain in a "dormant" state.

Resources such as rural land, houses, and forest rights are difficult to convert into liquid capital, limiting agriculture's capacity for expanded reproduction and industrial upgrading.

Agricultural assets face multiple circulation challenges. The non-standardized nature of assets leads to a lack of a unified scale for value assessment; evaluating the value of different plots of farmland and different crop varieties is complex.

Unclear ownership and a lack of trust make cross-regional transactions difficult, while numerous traditional intermediary layers further reduce capital circulation efficiency.

Within the traditional financial system, agricultural operators universally face the challenge of difficult and expensive financing. Due to risk considerations, financial institutions are reluctant to lend, making it hard for vast numbers of smallholder farmers and agricultural enterprises to obtain the financial support needed for development.

#### 2. RWA as the Solution: The Transformation from 'Paper Records' to 'On-Chain Assets'

RWA tokenization is ushering traditional agricultural assets into a new value epoch. By leveraging blockchain technology, it transforms farmland, crops, agricultural machinery, and even future profit rights into on-chain digital certificates, achieving a shift from "paper records" to digital assets that are liquid, tradable, and financeable.

The core value of agricultural RWA lies in its successful construction of a bridge for the credible digitization of assets. Through the immutability and transparency of blockchain, each tokenized asset has a clear record of ownership and a traceable transfer history.

At the recent "Abundant Chain Symbiosis · Agricultural RWA Innovation Forum" held in Hong Kong, experts pointed out that this transformation involves not just a technological upgrade, but a major adjustment in agricultural production relations.

RWA tokenization is creating entirely new asset classes within the agricultural sector. High-value, standardized specialty agricultural products like agarwood, dried tangerine peel, and star anise are becoming breakthrough points and model projects for agricultural RWA practice.

The tokenization of these assets provides replicable successful experience for the entire agricultural asset category.

### 3. Implementation Path: Multi-dimensional Application Scenarios for Agricultural RWA

At the practical level, agricultural RWA has already formed several viable application scenarios.

#### Agricultural Product Tokenization

Tokenizing agricultural products by converting them into digital certificates significantly improves transaction efficiency and transparency.

In 2025, a platform focused on putting agricultural products on-chain used an "IoT + Blockchain Dual Anchoring" model, deploying soil sensors on cocoa farms in Ghana. These sensors transmitted data like rainfall and pest indices in real-time and generated "NFTs for Yield" as on-chain certificates, reducing transaction price disputes by 52%.

#### Tokenization of Agricultural Profit Rights

This involves converting land management rights, future crop profits, etc., into tradable digital assets.

A collaboration between a certain location in Asia and Ayers Financial Group is a typical practice of this model. The two parties jointly promoted the practice of agricultural asset tokenization, reconstructing the value chain of agricultural assets through the integration of blockchain technology and financial instruments.

#### Carbon Sink Ecological Assetization

This transforms agricultural carbon sink earnings into tradable digital assets.

The collaboration between Dimitra and MANTRA, promoting a forest conservation project covering over 20,000 hectares in Mexico, is expected to generate nearly 1 million carbon credits over the next decade.

These carbon credits, made 100% traceable through blockchain technology, are easier to verify, trade, and invest in.

### 4. Technical Architecture: The Four Major Support Systems for Agricultural RWA

The realization of agricultural RWA relies on the synergistic effect of four major technical support systems.

The blockchain underlying architecture ensures clear asset ownership, preventing issues like double pledging and false valuations.

Credible data collection uses IoT devices to collect information like soil data, crop growth, and climate conditions in real-time, providing a reliable basis for asset valuation.

Smart contract execution automatically completes processes like transaction settlement and profit distribution, significantly reducing operational costs and the risk of human intervention.

The compliance regulatory framework ensures that agricultural RWA meets regulatory requirements in various jurisdictions, providing legal protection for the cross-border circulation of assets.

### 5. Value Reconstruction: The Paradigm Shift Brought by Agricultural RWA

Agricultural RWA is fundamentally reshaping the agricultural asset landscape.

It significantly enhances the liquidity of agricultural assets. Tokenization technology transforms physical assets like agricultural products, land management rights, and agricultural machinery into on-chain digital certificates, enabling asset divisibility, lowering investment thresholds, and allowing small funds to participate in large-scale agricultural asset investment.

Agricultural RWA creates a new mechanism for the fair distribution of value. Through the automatic execution of smart contracts, when an RWA asset is successfully financed, or when a piece of data is purchased by a research institution, the proceeds can be distributed in real-time, transparently, and automatically to every contributor according to predefined rules.

It also introduces global capital into agriculture. Through the tokenization of assets on the blockchain, agricultural projects can connect with global investors, gaining unprecedented financing channels.

The collaboration between Dimitra and MANTRA is a typical example. They jointly put green agricultural assets on-chain, providing farmers with innovative financing methods and allowing global investors to participate in sustainable value creation.

## 6. Challenges and Responses: Development Bottlenecks and Solutions for Agricultural RWA

Despite the bright prospects, the development of agricultural RWA still faces multiple challenges.

The "black box" valuation problem is prominent, with non-standardized assets lacking credible data anchors, leading to a 40% plunge in price fluctuation tolerance.

The compliance maze plagues industry development; compliance friction generated by overlapping multi-jurisdictional regulations consumes an average of 23% of project profits.

A liquidity gap hinders value realization; the efficiency of off-chain to on-chain value conversion is insufficient, with the average daily token turnover rate being less than 1/10th of traditional security RWAs.

Backlash from traditional interest chains cannot be ignored; intermediary systems resist on-chain transparency, leading to 71% of projects facing boycotts from offline channels.

Facing these challenges, industry pioneers have already explored effective solutions.

For valuation difficulties, adopting the "IoT + Blockchain Dual Anchoring" model, using real-time data transmission and on-chain certificate generation, has reduced transaction price dispute rates by 52%.

For compliance challenges, using Ricardian contracts to handle multi-jurisdictional regulation, embedding documents like certificates of origin into smart contracts, has reduced compliance costs from the original 12% to 3%.

For the liquidity predicament, establishing a dynamic clearing engine + US dollar stablecoin pool has significantly increased the transaction and settlement speed of agricultural product tokens on the chain.

## 7. Future Outlook: Development Trends and Vision for Agricultural RWA

The trend of accelerating technology integration is evident. The comprehensive application of blockchain, IoT, artificial intelligence, and other technologies is building a more complete and reliable agricultural RWA infrastructure.

International cooperation is deepening. From cocoa production in the Brazilian Amazon to carbon credit projects in Mexico, agricultural RWA is forming a global network connecting national agricultural resources with international capital markets.

From the capital markets of Hong Kong to the industrial chains of Shenzhen, from the Brazilian Amazon rainforest to carbon sink projects in Mexico, the practice of agricultural RWA is rapidly taking root and sprouting worldwide.

As more agricultural assets are tokenized through blockchain technology, a more efficient, transparent, and inclusive new agricultural financial ecosystem will accelerate its formation.

The value once locked in the land is being released in unprecedented ways, flowing to where it is most needed, and into the hands of the most creative minds.