



## **WHITEPAPER «SMARTLANDS»**

The Platform for tokenization  
of agricultural assets

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## **Abstract**

The blockchain technology has proved its worthiness in financial applications, with the widespread recognition of Bitcoin, Ethereum, and other crypto-currencies as a means of payment by both users and central banks in many countries.

Blockchain provides new opportunities for financial markets, and many investment banks, funds, investors and other participants are showing great interest in exploring possible ways of applying the technology for investing and attracting investments. Therefore, within a short period of time, such interest will lead to a significant inflow of funds to the token market, while the infrastructure for investments is still largely absent and available only for some applications.

The platform is designed to create a new class of low-risk tokens, secured by real, profitable assets in agriculture and establish an appropriate infrastructure and framework for crowdsales of such tokens that protects investors from major part of risks.

The magnitude of the potential market volume in the long-term perspective can be estimated based on the volume of the global asset-backed securities market, which reached [9.8 trillion USD in 2016](#).

## **Mission**

Creation of a new class of low-risk tokens based on real high-profit assets, which will change whole efficient frontier of portfolios for crypto-investors, increasing the expected yield for each level of risk. Put in place best practices in tokenization of agricultural assets.

## **Vision**

Smartlands Platform is a crucial element of the token market infrastructure and performs the major part of tokenization of agricultural assets in the most efficient and transparent way, creating significant value for the crypto community. Positive impact on the world economy, due to increased food security and sustainability of agriculture.

## Introduction

In our opinion, there are at least five existing major problems that can be solved with envisaged Platform for tokenization of agricultural assets. Thus, we anticipate that asset-backed tokens (hereinafter - ABTs) issued on Smartlands Platform will favor significant demand from investors, while agricultural companies will be motivated to cooperate with the Platform to issue such tokens.

Existing major problems that will be addressed by the Platform

- 1) Chaotic, confusing and unclear token issues
- 2) Extreme volatility of tokens and no safe haven assets in crypto universe
- 3) No comprehensible way to invest into projects in agriculture worldwide
- 4) No secure protocol to tokenize assets that leave 9,8 trillion USD market potential untapped
- 5) Soaring food demand caused by population growth (to reach 10 bln by 2050) that is unlikely to be met with current productivity increase pace

Core ideas of the Platform that will help to solve the aforementioned problems.

- Maximal transparency and accountability:
  - o Tokenization of agricultural assets with independent high quality legal and business analysis of an agricultural company and its assets
  - o Smartlands team expertise in agriculture and Platform's agtech ecosystem will result in state-of-the-art technologies to monitor agricultural assets.
- Risk protection provided by collateral of the assets
- Standardization of token issues and regulation to protect investor's interests with rules set by voting and implemented with blockchain technology

Unlike other tokenization protocols, we don't take liquidity for granted, understanding that ability to trade tokens does not automatically mean it will be easy to sell, once investor decides to quit the investment. Inability to sell quickly and efficiently, totally undermines the idea of achieving liquidity through tokenization. We see standardization of legal framework, rules and extensive monitoring as key tools to achieve liquidity (as well as transparency and accountability) of ABTs issued on the Platform. Moreover, they will be immediately tradable on the Stellar Distributed Exchange (SDEX)

Blockchain technology provides for secure application of distributed governance principles to setting up the rules of the Platform. Consequently, investors will be in position to set the rules they believe are the most appropriate instead of authorities that may adopt required changes too slowly, have low expertise, or even be corrupted.

We believe that ABTs will be a useful token for newcomers in blockchain investments (including institutional investors) since ABTs are simpler, more understandable and less risky asset. It will allow investors to familiarize themselves with technology in general without need for thorough understanding of the details. Thus, the Platform will also contribute to the additional inflow of funds into crypto-economy and its popularization.

Smartlands is excited to introduce ABTs for agricultural assets, especially in gardening, due to the following reasons:

1. Land and trees are long-term assets, and their price is insusceptible to significant fluctuations in the short-term;
2. Attractive market niches in agriculture provide highly profitable investment opportunities
3. We see the huge demand for investments in agriculture worldwide that is going to increase further due to strong persistent growth in food demand caused by population growth and change in diet as global middle class expands.

The Platform will focus on companies that have already introduced Agriculture 3.0 concept or plan to introduce it. Agriculture 3.0 is based on high-tech and IT solutions that provide for maximal efficiency, lower risk and transparency of activities.

## Tokens of Smartlands Platform from portfolio theory perspective

### Theoretical rationale for ABTs

A common concept in financial theory is that, despite some possible differences, investors are interested in the portfolio with the optimal ratio of expected return to risk. Profitability is calculated as the ratio of the future expected value (including the future value of all income received from the asset/portfolio for the period) to the present price minus one. The portfolio risk is usually defined as the standard deviation of the expected return. While the portfolio return is a weighted average of the returns of all assets (weighted with the present value of assets), the standard deviation depends on the standard deviation of each asset, on the number of assets in the portfolio and on the correlations between the returns on assets.

The formula for calculating the expected return of an investment portfolio

$$E(R_p) = \sum_{i=1}^n (w_i * E(R_i))$$

$w_i$  – weight of  $i$ -th asset in the portfolio

$E(R_i)$  – expected return of  $i$ -th asset

The formula for calculating the variance (square of standard deviation) of the investment portfolio

$$\sigma_p^2 = \sum_i w_i^2 \sigma_i^2 + \sum_i \sum_{j \neq i} w_i w_j \sigma_i \sigma_j \rho_{ij}$$

$w_i, w_j$  – weight of  $i$ -th and  $j$ -th assets respectively

$\sigma_i, \sigma_j$  – standard deviation of returns of  $i$ -th and  $j$ -th assets respectively

$\rho_{ij}$  – correlation of returns of  $i$ -th and  $j$ -th assets

Thus, it is the minimization of portfolio risk that is a non-trivial task in portfolio management, since it is influenced by 3 factors for each asset, and the relationships are non-linear. Additional problems complicating the task are [the non-normality of the distribution](#) of deviations, the inconstancy of correlations.

The basic method of minimizing portfolio risk is diversification – the distribution of investment between different assets. This method always works, but its effectiveness directly depends on the correlation between assets. The higher the correlation, the lower the effectiveness of diversification.

An additional problem is the inconstancy of correlations and they [increase during crises](#), which basically destroys the advantages of diversification and increases the risk of the portfolio in the sense of the probability of a drop in its value below a certain level.

Out of all possible combinations of all available assets (in the case of cryptoeconomy – tokens), there is one portfolio for each risk level that has the highest expected return (that is, the most interesting portfolio to investors). The set of such portfolios for each risk level forms an [efficient frontier](#). Thus, any investor is interested in investing in a portfolio that is located on the efficient frontier.

The appearance of a new asset will affect the entire frontier, but this effect is generally minimal. Should there be an asset that can have a significant positive effect on the frontier, all investors will want to have

such an asset increasing its price, and, accordingly, lowering its return. Thus, characteristics of the asset will be changed and no significant effect to the frontier will occur.

The Smartlands platform proposes to create a whole new class of assets that will have high enough profitability, low volatility, minimal correlation with existing available assets (tokens), including during periods of crises. The latter is due to the fact that agricultural companies in classical finance are also defensive stocks, which are less susceptible to general cycles - people slightly reduce consumption of basic food products even during periods of crises, unlike, for example, the purchase of new cars. Correlation of agricultural assets with tokens currently traded on crypto-exchanges is even less likely.

We assume that the created tokens will have characteristics that will significantly reduce the risk of portfolios, which will accordingly [change the entire frontier](#). The decrease in the profitability of ABTs, because of the high demand, will not have a significant effect, since the creation of the Platform allows to ensure a constant supply of high-quality ABTs that will meet high demand. At the same time, the expected high demand for both ABTs and investments in the agricultural sector is the reason for our optimism about the significant volume of tokens that will be created and sold on the Platform.

Thus, the Platform will change the entire efficient frontier, which will have a positive impact for all members of the community.

Even if the additional advantages of ABTs over conventional investments in the agricultural sector are not considered, the advantage of agricultural tokens is the opportunity to invest in agricultural assets without the need to buy fiat money, which can be a significant factor in the case of a short period of investment in such assets. The expected yield for a period can be commensurate with transactional costs. Accordingly, the investment with fiat money will be uninteresting or even meaningless.

# Liquidity, standardization and transparency of ABTs on Smartlands

## Platform

There is strong positive correlation between liquidity and a quantity of investors that understand details (and risks) of an asset, since such investors would be interested in buying an asset in case of attractive valuation. That is one of the key reasons why stock exchanges enforce additional regulations and standards for the companies willing to list their securities.

ABTs of agricultural company (or any other asset) under current conditions would have custom made legal framework and rules (e.g. for reporting) limiting the circle of possible investors to ICO participants and few other enthusiasts that would examine all the details. As a result, seemingly liquid ABTs will be most likely thinly traded and virtually illiquid.

On contrary Smartlands Platform suggest not only standardization and framework comparable with the classical financial market, but provide enhanced transparency and accountability through state-of-the-art IT solutions for agriculture and blockchain technology.

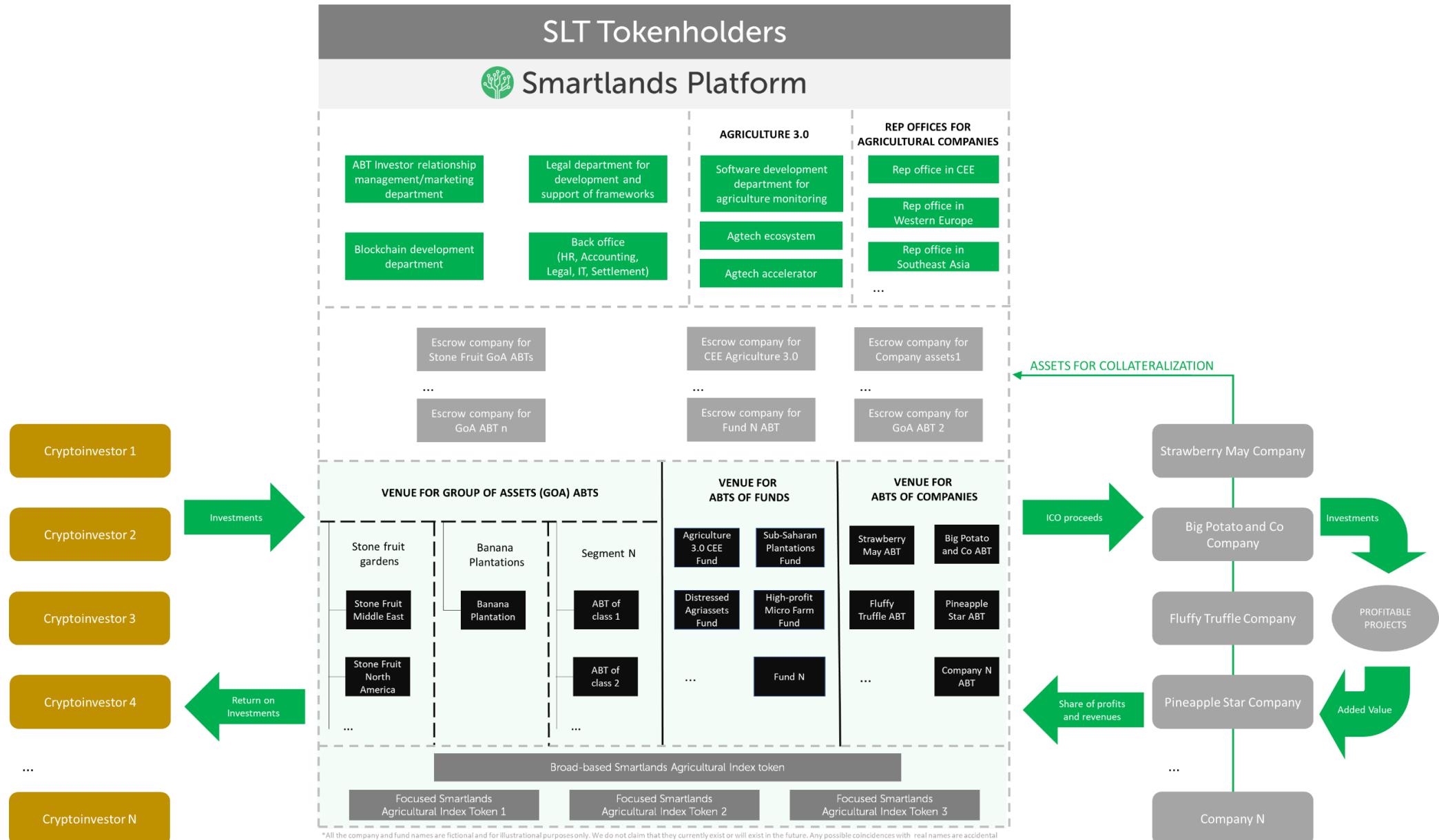
To promote liquidity of ABTs issued on Smartlands Platform we will address the following issues.

1. Standardization of legal, technical audit and other procedures for ABT issues to significantly decrease the amount of time and effort required by investors to check any ABT for possible risks.
2. The expertise of the Platform in Agtech and Agriculture 3.0 for initial and ongoing monitoring of companies that issue ABTs will build the trust of the investors in data provided by such companies. This will further enhance the ability of an investor to sell ABT whenever he decides appropriate at a fair price.
3. Procedures to combine smaller assets in pools while retaining accountability of the asset owner. Obviously, the liquidity of one integral ABT instead of tens, hundreds or even thousands of smaller individual ones will be tremendously higher.
4. ABTs issued on Smartlands will be tradable on Stellar distributed exchange right after the end of ICOs or within very short periods for technical reasons, if any.
5. Market making for ABTs issued on Platform is considered as the further development of Smartlands. Market making will provide additional liquidity and protection from price manipulations.

Despite the highly developed infrastructure and regulation of classical financial markets, we do not consider it a good idea to directly copy existing solutions. We will merge the experience accumulated over hundreds of years with possibilities of blockchain technology and the advantages of decentralization.

Instruments built on blockchain technology will ensure maximum transparency and asset control through distributed governance and making of all critical decisions by voting of tokenholders. Such decision will include (but not limited to) the decisions to issue new tokens for the purchase of assets, the definition of audit procedures, and the appointment of persons responsible for inspections. Such a level of control over the investment object is not available in the case of asset-backed securities, which led to extremely adverse results – the global financial crisis of 2008-2009. The centralized authorities were not able to promptly react and prevent the emerging "bubble" before it burst and led to financial and economic crises.

# General organization chart of the Smartlands Platform



## **Smartlands Platform mandate**

1. Development of smart contracts/customizations of tokens on Stellar placed on the platform with the logic optimal for each type of ABT, and all the necessary functionality, including extensive opportunities for democratic organization principles, to ensure maximum control over assets. Support and update if necessary and approved by the tokenholders.
2. Software development, which provides the most convenient way to obtain all the necessary information for the decision making for each of the parties (the owner of the asset and the investor), including automation solutions.
3. Definition of rules for legal structures of each type of ABT, which protect the interests of investors and minimize any legal risks. Ensuring the mandatory implementation of decisions made by the tokenholders.

*The legal framework should not prevent the agricultural companies issuing the tokens from operating as efficiently as possible and generate cash flows for ABT holders. To develop the optimal solution in key jurisdictions, legal companies will be hired, who will work in close cooperation with lawyers and business analysts of the Platform.*

4. Setting up of rules for technical inspections of assets before and after tokenization, the creation of the infrastructure necessary for this, including representative offices of the Platform in all key markets with the necessary equipment (drones, ground unmanned complexes, laboratory equipment, etc.) and personnel. It is possible to outsource part of the checks in case of compliance of the companies with all requirements of the Platform.
5. Monitoring of token dynamics, identification and prevention of negative events, illegal actions against tokens holders.
6. Advising in solving problems and conflicts, the establishment of an arbitration chamber that resolves conflicts in the event of the request and consent of both parties to take such decisions as binding.
7. Introduction of new types of ABTs
8. Marketing and expository activities about the advantages of ABTs issued on the Smartlands platform, both among asset owners and investors.
9. Cooperation with state bodies responsible for regulating the securities market to explain the benefits of asset tokenization and distributed control offered by blockchain technology. Advocating the idea of minimizing the regulation of such a market by the relevant central authorities for ABTs issued with enhanced monitoring and democratic organization capabilities.

## Types of ABTs

The three main types of tokens that will be implemented on the Platform are the following.

ABTs of companies are tokens of individual agricultural companies that conduct ICO according to Platform standards. Such companies will be examined according to the procedures of the Platform. To ensure the necessary flexibility, companies will be able to deviate from the standards on some issues, but such differences will be described in detail and justified for investors.

Key assets of such companies will be transferred as collateral to special escrow companies to minimize the risks of their improper disposal by the company's management.

The condition for the transfer of collateral assets will be the bankruptcy of the owner's company or unlawful actions of the owners, which lead to negative consequences for the holders of the tokens. Detailed conditions will be determined by the relevant agreements.

### Sequence of actions to issue ABT of a company on the Platform

1) An agricultural company addresses Platform to get its assets tokenized and raise the investments.

Smartlands Platform manages the process of verification and auditing of the company. The agricultural company pays the fee for the services provided.

2) The agricultural company and an escrow company enter a collateral agreement for the assets.

3) The Platform provides a standardized offer to potential investors. Investors buy tokens of the agricultural company providing investments for development of the company.

Platform ensures that tokens are tradable on SDEX and lists on the partner cryptocurrency exchanges (as a possible option in some cases) to enhance token liquidity

4) ABT investors buy the required amount of SLTs from holders at the current price.

5) Agricultural companies share the revenue and profit with ABT holders.

**ABTs of funds** - tokens of funds investing in the agricultural company. The profit from the activities of such companies (including profits when selling companies at a price higher than the purchase price) will be distributed to the tokenholders less the fund management premium and expenses.

Such ABTs are issued by a legal entity created by the Platform, in accordance with the rules similar to the creation of legal entities for ABTs of a group of assets. The key assets of the acquired companies will be transferred to the token issuing company as a collateral to keep investor's value despite some possible downturns for companies that received investments.

Holders of tokens of such funds will also have the right to make management decisions and receive detailed information about the status of companies/assets.

Such type of ABTs will allow investors to delegate a lot of issues to professional managers, nevertheless, retaining a high level of control over the fund's activities.

**ABT of a group of assets** - tokens, whose holders are entitled to a share in revenues and profits of a set of assets in a certain segment, for example, walnut production. Active management of the assets are managed by the current owners, but tokenholders will be able to monitor the state of assets and control the payment of fair part of revenues and profits (computation of the indicators themselves as well) with the Platform's assistance. The main assets are pledged to a legal entity - the issuer of tokens - representing the tokenholders. This type of tokens provides a possibility to effectively tokenize even small assets creating a truly liquid token.

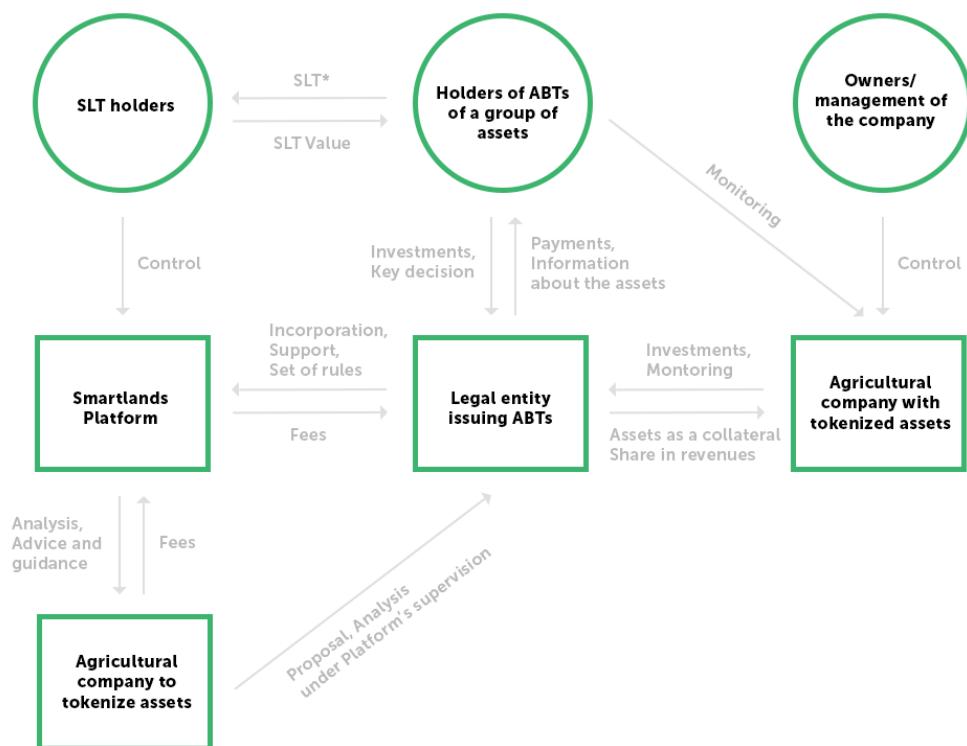
The legal entity that issues tokens will be created by the Platform, and the entity's charter will be formulated in a way to maximally protect the interests of the tokenholders, and not the founders (the Platform) since these entities will be established in the interests of the tokenholders. Payments to the founders - the Platform, will be limited by the charter. The right of founders to change the charter will be limited, and it is possible only in case of the consent of the absolute majority of tokenholders of the legal entity.

Priority targets to include to a group of assets of such ABT will be assets that are managed in accordance with the Agriculture 3.0 concept and have an integrated management system in place, allowing to monitor the asset at minimal cost.

With the significant development of ABTs in a certain segment, it will be possible to create subtypes based on the difference of one or several key parameters (asset region, the level of technology, etc.).

The decision to introduce such subtypes will be the subject of a vote by the holders of SLT (the Platform). Consideration of such a matter may be initiated by ABT holders in this segment, SLT holders and Platform management.

Below is a diagram of the interaction of key participants for the ABT of a group of assets.



## Key rules of the Platform

The tokenholders will have the opportunity to make such decisions by voting:

1. Determination of priority directions for the development of the Platform
2. Establishment and modification of the rules of the Platform
3. Appointment and removal of certain senior officers of the Platform
4. Creating and amending standardized legal structures
5. Definition of standard procedures for technical and financial audit of companies willing to attract financing on the Platform
6. Taking extraordinary measures in case of unlawful actions in relation to holders of ABTs issued on the Platform.

Voting will be implemented with built-in token capabilities of Stellar platform and will provide for distributed governance principle, which will ensure protection from falsification of results by means of distributed ledger.

The right of token holders to establish rules will come into effect after building the basic infrastructure of the Platform for the rapid implementation of the strategy developed by the founders, but not later than one year after the completion of the crowdsale of SLT.

Holders of ABTs issued on the Platform will be obliged to purchase part of SLTs, in order to involve investors to the governance of the Platform. Thus, the control of the Platform will be in the hands of the community of ABT investor, which will increase the credibility of the rules enforced by the Platform.

The total volume of SLT, which should be purchased by ABT holders issued on the Platform, will be proportional to the value of all ABTs, and the share of each investor is proportional to the proportion of its investment in ABT. The total number of tokens that are mandatory for the acquisition will be limited to ensure liquidity of SLT and will be established by SLT holders by voting. The initial value is set at 75% of the total SLT and can be changed within the limits of 50% to 80%.

The total number of tokens required for purchase ( $Q$ ) will be calculated using the following formulas:

In case of  $V < 10$  million USD:  $Q = 0$

In case of  $10 \leq V < 1000$  million USD:  $Q = N * \frac{k}{4} * \frac{V}{10^9}$

In case of  $1 \leq V < 100$  billion USD:  $Q = N * \frac{k}{8} * (3 * \lg V - 25)$

In case of  $V \geq 100$  billion USD:  $Q = k * N$

$V$  – value of all ABTs issues on the Platform

$k$  – maximal fraction of total amount of SLTs, that must be purchased

$N$  – the total amount of SLTs

For a better understanding of the formulas described above, the following table shows the results of calculation of the share of SLTs required for the acquisition, with the minimum and maximum values of  $k$ , and the different levels of the value of all ABTs issued on the Platform.

Results given k=50%		Results given k=80%	
Value of all ABTs, million USD	Share of SLTs required for purchase	Value of all ABTs, million USD	Share of SLTs required for purchase
5	0,0%	5	0,0%
10	0,13%	10	0,2%
50	0,63%	50	1,0%
100	1,25%	100	2,0%
500	6,25%	500	10,0%
1 000	12,50%	1 000	20,0%
5 000	25,61%	5 000	41,0%
10 000	31,25%	10 000	50,0%
50 000	44,36%	50 000	71,0%
100 000	50,00%	100 000	80,0%
500 000	50,00%	500 000	80,0%

The value of SLTs, which is required to be purchased by the ABT investor, cannot exceed a certain percentage of the corresponding investment. Initially, this percentage is set at 2%, and can be changed later by voting of SLT holders in the range from 1% to 5%. Such a restriction will prevent significant influence of SLT ownership on profitability of ABT investments. Additionally, it will let SLT to be sold in case of significant price appreciation (but subsequently repurchased from the market in case of decrease in value), thus, balance the market and help to avoid extreme fluctuations.

Access to detailed information about the proposed ICO of ABTs will be provided only for SLT holders. Also in the future, the introduction of a fee for such access is possible. An additional source of demand for SLT will be the requirement for issuers to pay for platform services in SLT.

In case of changes in the legal field related to the equalization of tokens to securities, the Platform will also provide an opportunity to issue tokens in line with the rules relating to securities.

### Competition

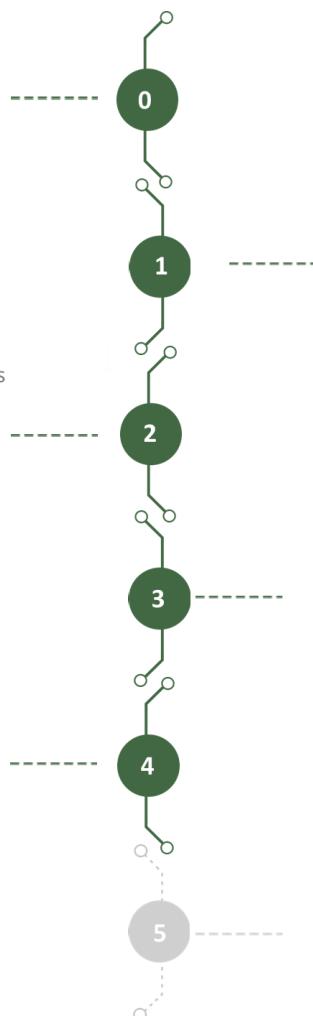
Recently, several other platforms for asset tokenization have been announced, but the solutions they offer do not provide an opportunity to achieve the transparency, standardization and liquidity, reliability and completeness of information offered by our Platform, which is provided by solutions created specifically for the agricultural sector, taking into account all the most important nuances.

We believe in the indisputable leadership of our platform for the tokenization of assets in agriculture.

## Roadmap

**November 2017**

Completion of ICO procedures, raising of investments for platform development, distribution of SLTs



**1<sup>st</sup> quarter 2018**

Tokenization of fruit, berry and nut orchards in Central and Eastern Europe by performing of ABT ICOs of companies. Integrations with Stellar platform.

**3<sup>rd</sup> quarter 2018**

Tokenization of all kind of agriculture assets related to arable farming in key markets (Europe, South-East Asia, South America). Launch of Smartlands Index Token.

**1<sup>st</sup> quarter 2019**

Implementation of API to obtain data from Agriculture companies issuing ABTs. Introduction of ABT ICOs for funds and group of assets.

**3<sup>rd</sup> quarter 2019**

Tokenization of all kind of agriculture assets including animal farming all over the world.

**2020+**

Further development of the platform to provide services in related industries: food processing, infrastructure for agriculture industry (logistics and storage), real estate

Development of basic infrastructure of the Platform is considered achieved after completion of the second stage: "Tokenization of all kind of agriculture assets related to arable farming in key markets (Europe, South-East Asia, South America). The launch of Smartlands Index Token."

Creating an ecosystem of agtech companies - partners of the Platform will be initiated from the very beginning. Investing in the creation of the accelerator is expected at a later stage and it is to be financed from the free cash flows of the Platform.

Expected breakdown of the use of proceeds is indicated below

**30%** Marketing expenses

**25%** Rep offices all over the world with all the necessary equipment for performance of agricultural audits.

**15%** Development of software for automatic monitoring based on artificial intelligence, integration with Stellar blockchain, other software.

**15%** Legal advisors, other related consultancy services

**10%** Pilot project – walnut orchard Smartlands

**5%** General and other

10% of token sale proceeds will be used to size up the pilot project of the Platform (walnut orchard) and perform all ICO preparation procedures in accordance with the best practices. The large scale of ICO and proper media support will increase public awareness of the Platform's benefits among both investors and agricultural companies.

## **The ecosystem of partner agtech companies**

At the initial stages, we intend to create an ecosystem of agtech companies - partners of the Platform, which in the future can be developed into agtech accelerator.

Such a partnership will allow the Platform to be always at the center of innovations in this field and to achieve integration with the information systems of ABT issuers as complete, reliable and effective as possible.

For agtech companies, cooperation with the Platform is an additional way to find clients and possibly investors, as investors in agricultural assets are also often interested in investing in agtech companies.

For ABT investors, the cooperation of the token issuing company with the agtech company from the Platform's ecosystem is an additional confidence in the correct use of the investments attracted by the agricultural companies. First, the risk of overstating the cost of implemented systems is significantly minimized. Such cost overstating is commonly used for improper withdrawal of investors' funds from the account of the company that attracted investments. Secondly, the risk of non-fulfillment of obligations by agtech company is reduced. Non-fulfillment of obligations may entail a lack of improvement in the efficiency of the token issuing company, accordingly reducing the income and profit of the asset, parts of which are allocated to investors.

For agricultural companies, cooperation with the agtech company from the Platform's ecosystem is the confidence in achieving contractual obligations by the contractor and larger amount of investments that can be raised, due to greater investors' confidence in the effective use of the ICO proceeds.

Thus, each of the parties of the ecosystem involved has an interest and benefit from cooperation, that makes us optimistic about the success of the establishment and development of such an ecosystem based on the Platform.

## **Expertise in assessment of agriculture assets**

In our opinion, the assessment of the true condition of the agricultural asset from the technical point of view is one of the most difficult and key tasks for investors when choosing an asset for acquisition, as well as controlling its activities. Our team of experts in agriculture and agtech, in partnership with specialized companies, develops a set of solutions for the most possible automated and objective determination of all the nuances of the asset. It will employ drones, specialized ground-based unmanned vehicles (robots), other hardware solutions, software for agricultural assets management, detailed video recording and analysis with geotagging and online broadcasting for token holders.

To monitor already tokenized assets, tokenholders can decide on unscheduled monitoring of enterprises. At the same time, some of the inspections can be appointed by special software, which, using historical patterns and available information, will determine suspicious results of activities of agricultural companies. Even if the tokenholders are not qualified enough, the Platform will help to fight fraud, and such checks will be virtually unpredictable for any of the enterprises since even the holders of the tokens will not know about them in advance. The unexpectedness of the checks will allow them to be as effective as possible. The control of the token holders will be done by assigning the number of such checks for a certain period (for example, for the next 3 months), thus, the monitoring costs will remain under the full control of the tokenholders.

In such a way, the most objective and complete information about the assets' condition will be obtained. It will allow investors to make informed decision about investing, as well as to protect them from attempts of agricultural company management to distort/manipulate the information about the company and its assets, or to hide part of the income and/or profit.

## Token sale structure

Total token supply will be limited by 100 000 000 SLT.

Price of 1 SLT is 0,5 USD

### Amount to be raised

- Expected: 15 000 000 USD
- Maximal: 25 000 000 USD

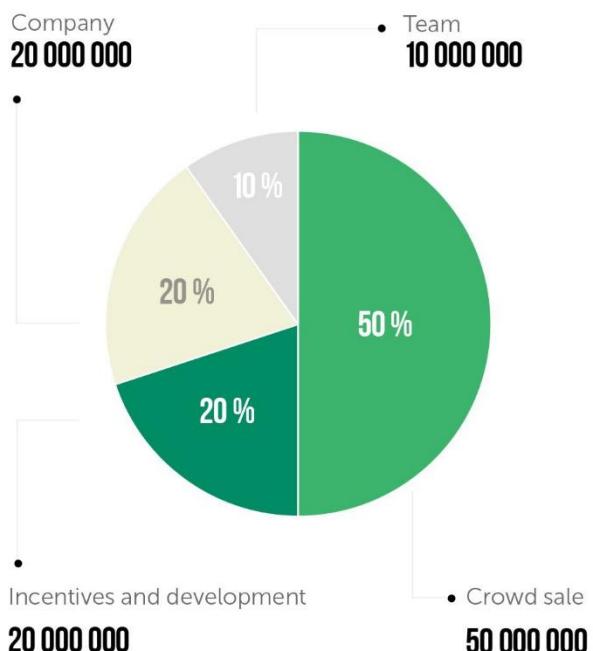
### Distribution of tokens:

1. 50 000 000 SLT or 50% of the total amount will be sold to participants of the crowdsale. This amount includes tokens available during both pre-sale and main sale.

2. 20 000 000 SLT or 20% of the total amount will be issued to develop the Platform and incentivize key stakeholders, promote the Platform and reward early adapters. Subject to lockdown periods

3. 20 000 000 SLT or 20% of the total amount will be provided to the company that creates the platform. Subject to lockdown periods of up to 3 years.

4. 10 000 000 SLT or 10% of the total amount will be provided to the team as incentivization and to cover crowdsale preparation expenses. Subject to lockdown periods



### Main token sale bonuses

Main token sale bonuses	
Bonus	Period
20%	1st day
15%	2-3rd days
10%	4-5th days
5%	6-10th days
0%	11-15th days

SLT is a utility token, which gives the right to regulate the activity of the Platform for asset tokenization – Smartlands.

All unsold and undistributed tokens will be burned. For example, if only 30 000 000 SLT tokens will be sold, then Team, Company, Incentives and developments token amounts will decrease proportionally to 6 000 000, 12 000 000 and 12 000 000 SLT tokens accordingly, while 40 000 000 SLT tokens will be burned.

SLT token will be Stellar based token. Smartlands intends to use the Stellar network given the following reasons:

- 1) Stellar is proved solution used by banks, Deloitte, IBM and other mainstream companies showing high maturity and security, while development of the new blockchain has certain risks
- 2) Use of existing solutions will let us reach milestones of our roadmap sooner and allocate resources to other fields of Platform development
- 3) Stellar perfectly suits needs of Smartlands Platform in its capabilities and idea.
  - a. Stellar distributed exchange is great for providing liquidity for ABTs issued on our Platform
  - b. Low transaction costs are great for our idea of co-trading of SLT together with each trade in ABTs that will provide sustainable high trading volumes of SLT at low cost
  - c. Stellar's primary goal is to facilitate issuing and trading tokens, especially those tied to legal commitments by known organizations, such as claims on real-world assets or fiat currency that is perfectly in line with Smartlands idea
  - d. Same focus markets for Stellar and Smartlands – developing countries. Building trust with blockchain technology alleviates the risks and thus brings value to all the parties involved. We plan to develop further our cooperation once Smartlands platform will be successfully launched.

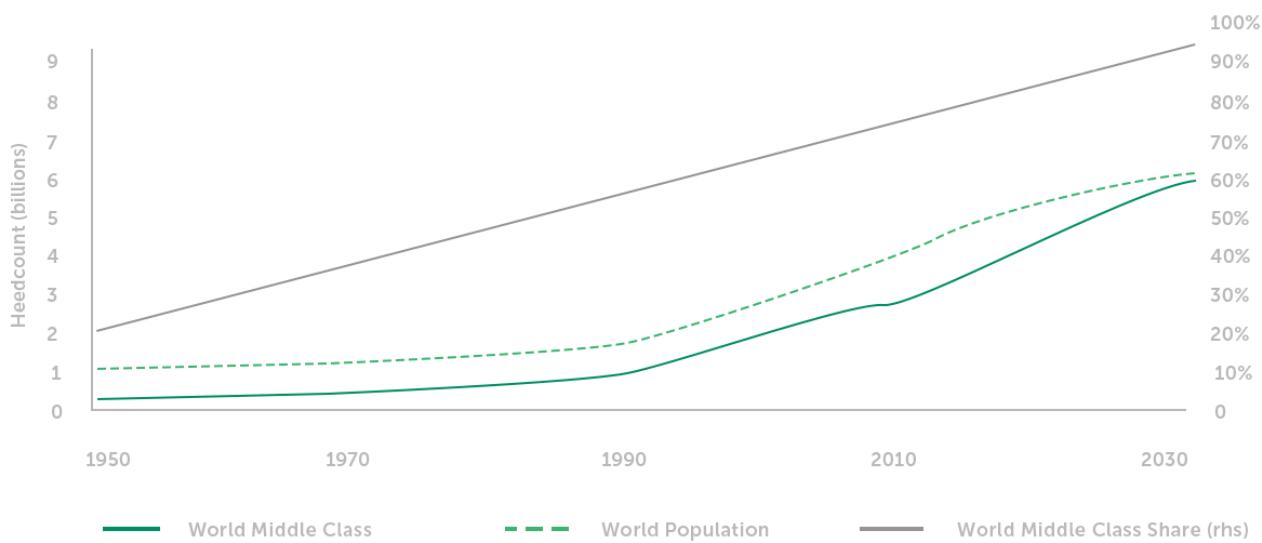
Should insuperable inconsistency of Smartlands business model/development path with Stellar Platform emerge that we consider as a highly unlikely event, Smartlands will create own blockchain. If it happens to be the case, tokens issued for this token sale based on Stellar blockchain will be swapped with Smartlands blockchain tokens. It is possible that additional tokens will be issued to be offered on SCO. Holders of SLT tokens issued during this crowdsale will have the opportunity to participate in the pre-sale of the SCO with a special discount. Detailed conditions for the possible SCO will be agreed with the SLT holders.

## Demand for investments in Agriculture

For the successful functioning of the Platform, besides the interest of investors, there should also be ample opportunities for investing in the agricultural sector and sufficient agricultural assets for collateralization. According to the report of Savills research team agricultural land, farms, estates and forestry total [US\\$27.2 trillion](#), that is definitely enough to make the Platform efficient. It is somewhat harder to measure or estimate amount of available investment opportunities, nevertheless study performed by International Institute for sustainable development and The International Food Policy Research Institute suggests that about [11 billion USD](#) must be additionally invested annually to end the hunger. And that is only the tip of an iceberg. The agricultural sector is significantly underfunded, especially in the field of introducing high-tech solutions in small and medium-sized agricultural enterprises all over the world.

[According to the UN forecast](#), the total population of the planet will increase to 9.8 billion people by 2050. At the same time, a [widely cited fundamental study](#) comes to an estimate of the likely 98% increase in demand for food by 2050. The reason why the forecasted demand for food will significantly exceed the growth of the population is due to the impact of the [increase in the well-being of the population](#) and a change in the diet towards protein foods. The greatest growth until 2050 of middle-class population is expected in South-East Asia.

As can be seen from the graph below, the dynamics of the growth of the middle class has significantly accelerated and by 2030 is expected to be at an even higher level.



The accelerated growth in demand will determine the agricultural markets in the next decades. Farmers around the world will need to increase crop production either by increasing the area of agricultural lands for growing crops or by increasing productivity on existing agricultural land through fertilizer and irrigation, and adopting new methods such as precise farming.

Nevertheless, the environmental and social consequences of allocating land for agriculture are often significant, especially in the tropics. And the yield of agricultural crops – the amount of harvest per unit of cultivated land, is now growing too slowly to meet the projected demand for food.

Many other factors, from climate change to insufficient investment, will also make it difficult to produce enough food. There is an [academic consensus](#) that the water deficit associated with climate change, rising global temperatures and extreme weather will have serious long-term consequences for crop yields. It is expected that they will affect many large agricultural areas, especially those that are close to the equator. For example, the Brazilian state of Mato Grosso, one of the most important agricultural regions around the world, may face a 20% -23% reduction in soybean and maize production by 2050 due to climate change. In the Midwest of the United States and in Eastern Australia - two other important regions in the world scale - can also face a significant decline in crop yields due to extreme heat.

Small and medium-sized enterprises remain the [main investors](#) in the agricultural sector in developing countries and play a key role in managing and shaping the development of value chains for agricultural products.

But such enterprises generally do not have access to sufficient sources of financing, which leads to a low rate of growth in productivity and efficiency. In our opinion, the most optimal and, accordingly, profitable way to solve the problem, is the provision of financing to such farmers to increase their efficiency and sustainability, namely for

- Drones and remote sensors
- Smart equipment and robotics
- Big data & predictive data analytics systems
- Smart logistics and storage

## Contribution to sustainable development

At the core of agtech innovations is the necessity to increase global agricultural output in a sustainable way. By leveraging new technologies agricultural companies can produce more, conserving and protecting soil, water, and other natural resources. And it does not come at cost of the consumers, on contrary, they enjoy access to more diverse and better food in larger amounts.

Feeding the world releases [up to 17 billion tons of carbon dioxide annually or 29%](#) of global greenhouse gas emissions into the atmosphere. The implementation of agtech solutions to food production will decrease the emissions significantly by increase in efficiency and disruption to current resource intensive technologies

The Platform will eliminate the barriers for investors from all over the world and provide unique opportunity to finance the introduction of agtech innovations. Thus, the Platform will have a positive impact on the achievement of sustainable development of agriculture and the world economy in general.

The introduction of agtech innovations and accurate farming will favorably affect the environmental situation by reduction of:

1. the amount of chemicals applied;
2. mining of minerals used to produce fertilizers;
3. gas consumption due to the use of smaller amounts of nitrogen fertilizers, which are usually produced from natural gas;
4. pollution of soil, water resources and air by the chemical industry due to the reduction in the production of fertilizers and other agrochemicals;
5. fuel consumption because of reducing the number of procedures for the application of agrochemicals, as well as using vehicles with electric drive - UAVs and unmanned ground complexes/robots (in the medium term).
6. the need for deforestation to use a land for agricultural purposes, due to increased yields of existing farming

## References

1. [https://www.morganstanley.com/im/publication/insights/investment-insights/ii\\_overviewofglobalsecuritizedassets\\_en.pdf](https://www.morganstanley.com/im/publication/insights/investment-insights/ii_overviewofglobalsecuritizedassets_en.pdf)
2. <http://www.savills.com/blog/article/216300/residential-property/how-much-is-the-world-worth.aspx>
3. <https://arxiv.org/pdf/1102.1339.pdf>
4. <https://www.benzinga.com/general/education/14/11/4980296/nobel-prize-winners-perfect-portfolio-the-secret-ingredient-revealed>
5. [https://esa.un.org/unpd/wpp/Publications/Files/WPP2017\\_KeyFindings.pdf](https://esa.un.org/unpd/wpp/Publications/Files/WPP2017_KeyFindings.pdf)
6. <http://onlinelibrary.wiley.com/doi/10.1111/agec.12089/abstract;jsessionid=814F570ADA81E76D52D4800C26BB08A3.f03t03>
7. <https://www.forbes.com/sites/themixingbowl/2017/06/13/2017-agtech-landscape-whats-on-the-horizon/#6836c8da36ae>
8. [https://www.tiaa.org/public/pdf/tgam\\_investing\\_in\\_the\\_agriculture\\_value\\_chain.pdf](https://www.tiaa.org/public/pdf/tgam_investing_in_the_agriculture_value_chain.pdf)
9. [https://www.brookings.edu/wp-content/uploads/2017/02/global\\_20170228\\_global-middle-class.pdf](https://www.brookings.edu/wp-content/uploads/2017/02/global_20170228_global-middle-class.pdf)
10. <https://hbr.org/2016/04/global-demand-for-food-is-rising-can-we-meet-it>
11. <https://www.sciencedaily.com/releases/2012/10/121030210343.htm>
12. [http://www.springer.com/cda/content/document/cda\\_downloaddocument/9783642554438-c1.pdf?SGWID=0-0-45-1483313-p176738117](http://www.springer.com/cda/content/document/cda_downloaddocument/9783642554438-c1.pdf?SGWID=0-0-45-1483313-p176738117)
13. <https://www.iisd.org/sites/default/files/publications/how-small-agricultural-business-support-crv-chains-equator-seeds-uganda.pdf>
14. <https://www.economist.com/news/business/21602757-managers-most-traditional-industries-distrust-promising-new-technology-digital>
15. <http://www.iisd.org/sites/default/files/publications/ending-hunger-what-would-it-cost-presentation.pdf>
16. [http://www.valoral.com/\\_apps\\_/download/get/fields-of-promise-the-untapped-investment-potential-of-the-south/56.html](http://www.valoral.com/_apps_/download/get/fields-of-promise-the-untapped-investment-potential-of-the-south/56.html)



## ANNEX 1

# PILOT PROJECT: TOKENIZATION OF SMARTLANDS ORCHARD



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### Introduction

Smartlands Walnut Orchard (hereafter SLG) is located in the most favorable forest-steppe zone for growing nuts. When it was laid, only grafted seedlings of localized varieties were used, and it is controlled according to Agriculture 3.0 conception. In our opinion, this is an ideal asset for tokenization, since it meets all the necessary requirements: it has assets that are of significant value and can be pledged, it is in a very attractive niche, which ensures high profitability, and monitoring of its condition by investors is maximally accessible due to highly automated control system.

### IT as a driver of paradigm changing in agriculture.

Agriculture has been engaged in mankind for tens of thousands of years, and by the year 2000 Agriculture efficiency had reached such a high level that further significant improvements seemed scarcely possible. Nevertheless, it is obvious that now there is a revolution in agriculture, and efficiency and profitability can be significantly increased. On the one hand, technological opportunities allow the introduction of the concept of precise farming, on the other hand, the significant use of agrochemicals leads to widespread negative effects on human health, which in turn generates demand for organic agricultural products, the cultivation of which is greatly facilitated by the application of precision farming. Unlike the previous ones, this paradigm shift is caused neither by machine builders who design new harvesters, nor chemists who invent new insecticides, pesticides and other agrochemicals, and even nor by biotechnologists who create new GMOs. The key driver of changes are information technologies, thanks to which precision agriculture became possible.

### Agriculture 3.0 and organic food

Previously, the efficiency of agricultural machinery was measured by the number of cubic meters of introduced agrochemicals or the area of cultivated land per hour. At the same time, general rules and application rates were used with minimal understanding of the plant's needs in the given season and without any consideration for the peculiarities of the individual parts of the field. Tons of chemicals were introduced where there was no need for them. Nevertheless, the high productivity of agricultural machinery and the moderate cost of agrochemicals made it possible to achieve high yields at acceptable costs.

Cost reduction of various sensors, wide use of drones, the processing and systematization of large amounts of information from both drones and other sources of monitoring (satellites, weather stations, soil analyses, pest monitoring systems, machinery data on exact quantities of introduced chemicals) it has become possible to understand the state of plants with great accuracy and frequency of renewal, that radically changes the approach to farming. This approach allows to minimize the cost of buying agrochemicals and their introduction as well as to respond faster to any problems that arise. In addition to reducing costs, the quality of products also increases due to the lower content of chemicals. In turn, with the minimization of the amount of agrochemicals introduced, it becomes possible to replace them with more expensive but less harmful substances, the use of which is permitted in organic farming.



### Business model

In the operational area, our strategy is to maximize the production of agricultural products in the countries, where the cost of production is minimal, and exports to the scarcest markets.

Central and Eastern Europe possesses all the necessary factors for the cultivation of walnut and sweet cherry - favorable climatic conditions, optimal for such orchards lands, low cost of labor, which makes it possible to obtain high return on invested capital.

Application of highly technological solutions for agricultural production and favorable factors allow to produce products at minimal costs. Export orientation, properly constructed marketing and logistics allow to maximize revenues.

### Mission

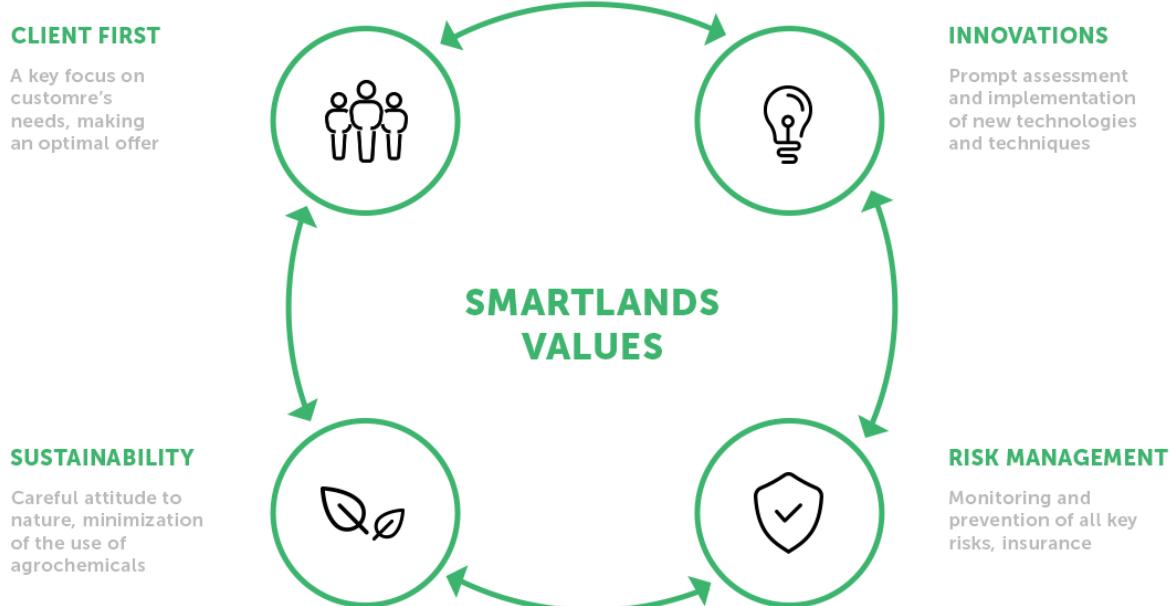
Production of highly competitive good-quality agricultural products in the most attractive market niches, applying the concept of Agriculture 3.0, focused on innovation, environmental friendliness, profitability and reliability. Aggressive growth fueled by investments attracted through asset tokenization.

### Vision

A leader in the production and export of walnuts and cherries in Eastern Europe, the flagship in Agriculture 3.0 implementation in orchard management.

### Values

The values of SLG are based on the values underlying out of Agriculture 3.0. We pay equal attention to each stage of product value creation and strive to achieve perfection at all stages.





## Value chain of walnut



Processing is an integral part of Agriculture 3.0 in the walnut industry.

One of the key bases of Agriculture 3.0 is the primary importance of product quality, not quantity. Ensuring a stable quality of nuts, especially when purchasing part of the supply from the public and other orchards for export, is practically impossible without processing before packaging the sorted kernels. And the lack of stable quality is the lack of quality in general.

By processing, it is possible to create a product portfolio of a certain stable quality: from crumbs to halves (butterflies) of different sizes and shades.

The customers' needs should be maximally satisfied for their desire to pay the higher price, which in turn can maximize profits.

Splitting and vacuum packing of nuts in no way limits the further use of the product, does not reduce shelf life, but creates an identical product that is more technological and ready for use.

Thus, processing of nuts is an important element of Agriculture 3.0, that allows us to be sure of the stability of quality, adequacy the product quality to the customers' requirement, creating a brand, achieving leadership in the industry.

#### Value adding in selling of sweet cherries

There are two key factors in the creation of the value of sweet cherries for export: first, the cultivation of the premium product and the harvesting in time (to ensure an optimal balance of palatability and shelf life), and secondly, the logistics that allow delivering the properly packaged product in the possible shortest time with no delay.

The first factor, as in the case of nuts, is provided by the innovations in gardening and the use of Agriculture 3.0. Accurate fulfillment of logistics tasks also largely depends on the integrated management system of gardening, that will provide in advance actual information about the time of ripening and the volume of the harvest. On the other hand, tight control both in the sending country and the recipient country is required for the proper operation of export logistics. And it will be provided by our sales representatives in key markets. Extensive experience in export-import activities and the ability to quickly find solutions provides for trouble-free customs clearing.



## Gardening and Agriculture 3.0

The main distinctive features of Agriculture 3.0 in gardening are the following:

1. An integrated management system based on specialized software, allowing to integrate monitoring data from all possible sources, measurement of all actions; Systematize, process such data and provide relevant reports for decision making.
2. Monitoring of all key indicators of the state of soil, air, plants, as well as weather conditions, pest concentration, other factors
3. Use of advanced agricultural machinery with precise geolocation and a significant level of automation. The key is the ability to accurately apply fertilizers and crop protection agents, but not productivity in hectares/tons per hour.
4. Use of micro fertilizers and other means of high efficiency.
5. The system of integrated tree protection, which is based on detailed monitoring of harmful organisms (including assessment based on temperature monitoring, precipitation, etc.), the choice of optimal methods of fighting, the priority of mechanical and biological methods. The application of chemical insecticides only in extreme cases.
6. Insurance and risk management.
7. Advanced irrigation systems in regions with insufficient precipitation

Advantages of Agriculture 3.0 in gardening.

1. Achievement of high yield because of prompt problem solving and creation of optimal conditions for trees.
2. Quick identification of the problem, thanks to extensive monitoring of the state of the orchard and automated accounting system.
3. Proper assessment of threats and the development of the most effective solution.
4. Quick and effective implementation of solutions, localization of the problem, thanks to high-tech and high-precision agricultural technology.
5. Ability to create optimal conditions for each tree.
6. Minimize risks, both through rapid response to emerging threats, and through insurance of trees and crops.
7. Significant reduction in the use of insecticides, herbicides, chemical fertilizers, which, in addition to reduction of costs, also reduces the negative impact on the environment and increases the usefulness (respectively cost) of products.
8. The possibility of obtaining organic certification of products with minimal additional expenses and/or crop losses.



### Smartlands Walnut Orchard

#### Exemplary orchard

At the moment SLG owns a young Orchard with walnut trees measuring 50 hectares. The laying of the orchard took place in 2010. The orchard is in immaculate condition thanks to high technological processing and it has been already fructifying.

The orchard was laid with localized seedlings (the inter-row distance of 10x10m), varieties Kliskovetsky, Buoyancy, Chernivetsky, Tarkovsky.

The use of localized seedlings is a prerequisite for good orchard health, respectively a long life and high yield. The use of grafted varieties, rather than a seedling, allows to obtain nuts of a larger size, higher quality and better ratio of the kernel to shell weight.

The orchard is in optimal climatic conditions for these varieties and on the soil, most suitable for growing walnut. The orchard is located in the forest-steppe zone in Eastern Europe - Ukraine, Mykolaiv region, Pervomayskiy district.

Technical characteristics of the orchard trees: the height of the bole is 1.5-1.7 m, the crown habit varies from 3.5 to 4.0 m, the number of crown branches varies from 5 to 7 pieces. The crown is sprawling, spherical or rounded. The number of annual shoots varies on average from 30 to 50 pieces. The thickness of the stem at the level of 20cm is 18-25cm.

Great condition of the orchard is also described in the audit performed by specialists of Association Uksadprom – the largest association of industrial orchards in Ukraine. Additionally, SLG was audited to prove that there are no hidden risks related to investing in the orchard. *[Hyperlinks to download the report from our website will be added shortly].*

#### State-of-the-art Equipment

In the processing and management of the orchard modern agricultural machinery is used.

To collect detailed operational information about the state of the orchard agricultural drones are used, which allows:

- to respond to arisen problems promptly and to identify them up to each individual tree
- to minimize operating costs for monitoring
- to evaluate the harvest accurately.

To assess all relevant meteorological parameters in the orchard, innovative meteorological stations Meteotrek are used.

Other machinery used for the cultivation of land, tree care, harvesting, meets the high standards of Agriculture 3.0 concept as well.

#### Irrigation System

The modern watering system is installed in the orchard. Water is supplied to each tree individually, which allows to maintain the most favorable conditions for growth and high productivity of the trees.

The pond with area of about a hectare is located on the territory of the garden, which gives unlimited access to free water for watering of the trees.



### Integrated management system

The integrated management system of our walnut garden keeps records of and analyses the complete list of parameters, including such:

- Intensity of solar radiation
- Temperature and humidity of soil at different depths
- Precipitation
- Temperature and humidity of air, atmospheric pressure
- Direction and velocity of wind
- NDVI and other indicators of vegetation
- Chemical analysis of soil
- Monitoring of pest levels
- All gardening activities

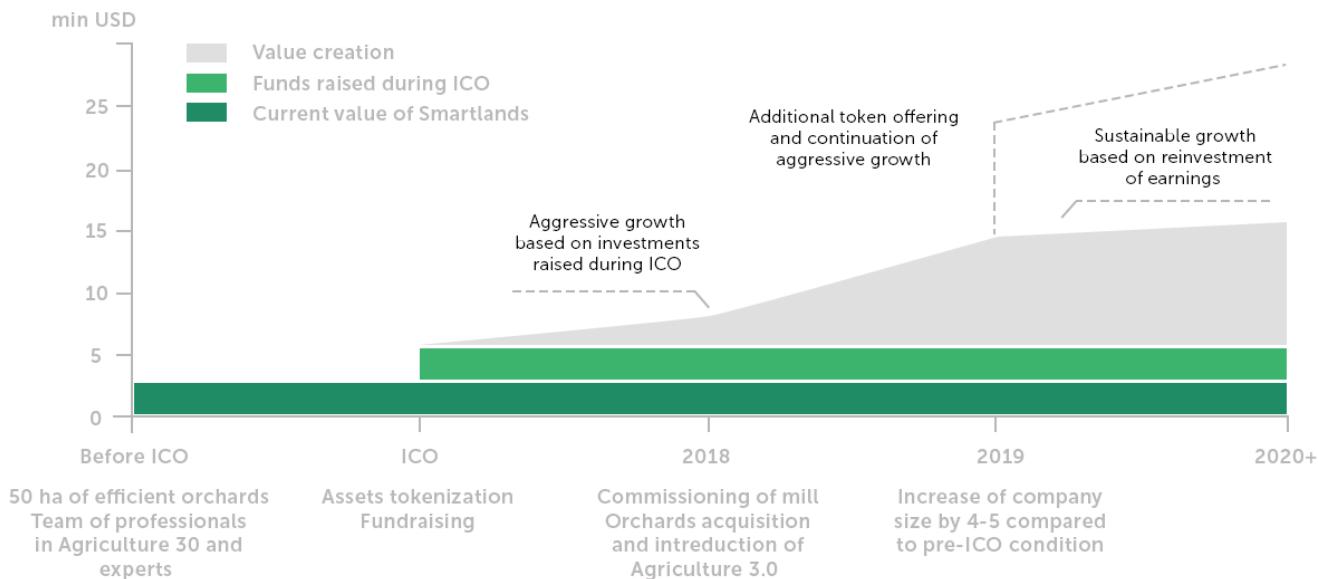


## Roadmap

The development strategy of the company is focused on maximally rapid growth of the company's value, which, accordingly, will positively affect the cost of SWPT tokens. The standard "recipe" for achieving this result is the company's high profitability, dynamic development and minimization of risks.

## ROADMAP

### GROWTH OF SMARTLANDS VALUE BY STAGES OF DEVELOPMENT



The first stage of the company's development was the creation of an exemplary walnut garden managed according to Agriculture 3.0 and gaining extensive experience in trading of Eastern European horticultural products (walnuts).

The second stage will be attraction of investments through an ICO for further aggressive development of the agricultural assets of SLG. Asset tokenization is the best way, as it gives the maximum flexibility to invest in gardening assets in Eastern Europe regardless of jurisdiction and whether the most profitable projects coincide with the ability to promptly attract financing for such a project in a given country or not. Accordingly, this will allow us to invest only in the best projects.

The third stage of development will be investment of raised funds into the creation of the walnut processing line and putting it into operation before the start of the walnut harvest season in 2018. Also, investments will be made in new walnut and cherry orchards in Central and Eastern Europe. This stage will be completed by August 2018.

The fourth stage will be bringing the management of the acquired gardens in line with Agriculture 3.0 and reaching a business scale at least 4-5 times more than before the ICO. Completion of this stage is expected before the end of 2019.

The fifth stage will be the further development of the company by attracting additional financing and further exponential growth, or by refinancing retained earnings. The base scenario is growth by raising capital, since after the successful implementation of the previous stages, the opportunities for attraction will be much more extensive, and the scale of the business presupposes the existence of further highly profitable projects for investment.



### Investment targets– Walnuts processing line

As previously stated, the walnuts processing line ending with vacuum packing of halves and other fractions of the nut kernel will create a significant added value for both consumers and investors, by bringing a significant profit to the company.

The amount of necessary investment to create such a line will be 1 million USD.

#### Key specifications of the line

The capacity of the line will be 500 kg per hour or up to 2000 tons per season with three-shift operation.

The yield of halves (butterfly) - the most expensive fraction - of the total mass of the kernel will be at least 80%. High level of halves output is provided by highly technological equipment, pre-calibrated nuts in shell and the presence of 4 nut breakers of different calibers, which ensures preservation of the integrity of the kernel.

The total installed design capacity of the line is 45 kW.

#### Key elements of the processing line

- Stone catcher
- Washer, separator of husks
- Dryers for whole nuts
- Rotary calibrator for in shell nuts
- Nut cracking machines, 4 calibers
- Vibrating screen for sorting of nut kernels into fractions
- Aspiration system
- Inspection table-conveyor
- Packing line
- Bunkers and conveyors,
- Storage for in shell nuts and finished products
- Quality control laboratory

#### Technological processes of walnuts processing





### Investment targets – Acquisition of walnut and cherry orchards

We intend to grow the assets value aggressively in the following way. We plan to multiply our successful experience of the Smartlands team in the implementation of Agriculture 3.0 and the improvement of the profitability of the orchards, thus we plan to purchase/create the orchards for an amount of about 2 million USD (considering financing for the implementation of Agriculture 3.0).

We plan to increase the area of orchards to 150-200 hectares. Target crops are proper cultivars of walnuts and cherries that have a significant export potential.

Smartlands has previously identified potential orchards for acquisition in countries of Central and Eastern Europe

#### Value creation for investors

The laying of new orchards results in a long pay-back period/return of investment due to the necessary period for trees to grow.

Our team is aiming to obtain results in a much shorter period by buying existing orchards.

Our experience shows significant opportunities for increase in profitability, and therefore the value of orchards, through optimal management of both orchard maintenance and marketing.

Most farmers in Eastern Europe today grow fruits and berries without using up-to-date technologies and, thus, they are exposed to all kind of risks that result in inefficient use of resources. Typical problems are:

- 1) Absence of a quality management system
- 2) Low yield
- 3) manual labor
- 4) Absence of irrigation
- 5) Absence of insurance
- 6) Unpredictability of ability to sell products of gardening

The additional negative factor is the fragmentation of the market with lots of small producers that does not allow to provide volumes required for export shipments and of stable quality.

A frequent problem for farmers, especially in the case of small orchards, is the incapability/ difficulty in attracting the investments necessary to improve the gardening processes, leading to the loss of a large part of the crop due to parasites, diseases, improper collection and storage.

Obsolete Soviet technologies of orchard management are still widely in place, resulting in huge potential for improvement after acquisition and optimization of processes.

There are still no major players in the market of nut and berry orchards in Central and Eastern Europe, which makes it possible to create a market leader with a relatively small investment.

Managing a large number of orchards and, accordingly, achieving a sufficient volume of production will enable us to sign direct contracts with consumers, not traders, which will increase the selling price.

An additional positive factor will be economies of scale and cost savings in case of management of several orchards.



### Laying of new orchards

Despite the main disadvantage of laying new orchards - the time from laying to fruiting, this way also has two significant advantages - the possibility of creating an ideal orchard for our business model and the lower cost of creation of an orchard than buying an existing one.

At this stage of the development of Smartlands and the industry in whole, we assume a small part of proceeds to invest in the laying of orchards. But with the growth of the company and the possible emergence of other competing companies with a similar business model, the number of orchards offered for purchase will decrease and the price will increase. Accordingly, the balance will shift towards the laying of new orchards.

The problem of a long period of time from laying to fruiting is less significant for cherry orchards, due to a shorter period: 3-4 years. Also, cherry orchards, which produce berries of large caliber, which are in great demand in foreign markets, are quite rare now. Accordingly, firstly, we will focus on the creation of new cherry orchards.

When laying an orchard with exclusively walnut trees, the disadvantage of a long period before fruiting is particularly significant, since the period from the laying of the orchard to the first industrial harvest is at least 6-7 years. This problem is minimized by using free space (before the growth of walnut trees) between walnut trees by other trees/bushes that start to bear fruit much faster (in 2-3 years). Thus, investors will get a highly profitable walnut orchard in 7-10 years, while having a positive cash flow starting from the third year.

Typical plants that are used for utilization of free spaces in walnut orchards are pear, hazelnut, berry bushes.

The decision on the choice of an additional plant will be made based on the following factors:

- Soil characteristics
- Climate pattern
- Availability of specialists for the plant in the region
- Logistics
- Expectations of market conditions for products of such plants
- Diversification of company's risks in general

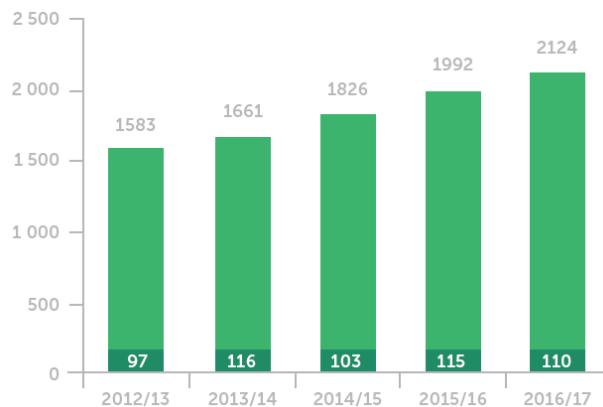


## Market analyses

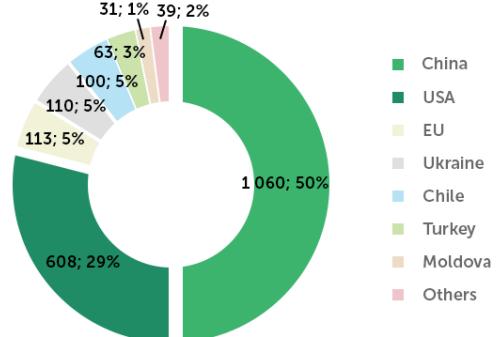
### Walnut market

The growth of world walnut consumption for 4 years exceeded 35% from 1.58 million tons in 2012/13 to 2.1 million tons in 2016/17 (USDA). The US and China share 80% of worldwide production of walnut.

Dynamics of global walnut production, kt



Structure of worldwide production of walnut in 2016/17, kt

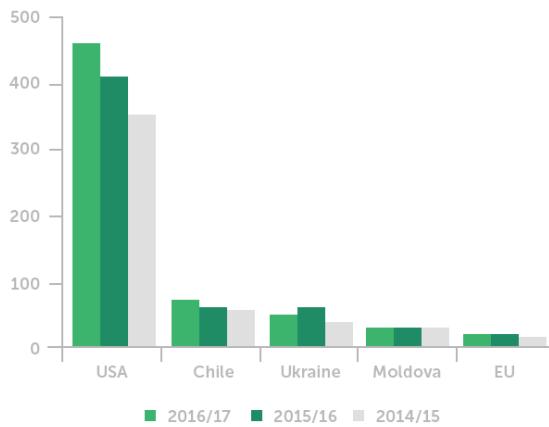


The volume of international trade of walnuts for 4 years has increased by 42% - from 503 thousand tons in 2012/13 marketing year to 714 thousand tons in 2016/17.

The US dominates the international walnut market with a share of global exports of more than 65%.

Eastern Europe is represented by two countries - Ukraine and Moldova occupy the third and fourth places with market shares of 9% and 5% respectively.

Dynamics of walnut export by key market participants, kt



Dynamics of walnut import by key market participants, kt



The Eastern European walnut market has demonstrated robust growth in the past few years amid rising global demand and, accordingly, the volume of exports.

The world market of walnut has a significant growth due to its high nutritional value, insufficient market saturation (consumption is much lower than the recommended standards) and the general trend for paying attention to healthy nutrition.



## Annex 1. PILOT PROJECT: TOKENIZATION OF SMARTLANDS ORCHARD

### Sweet cherry market

Unlike the walnut market, the sweet cherry market is formed and does not show significant growth. The average growth rate of world production of sweet cherry in the last 5 years is about 2% per year.

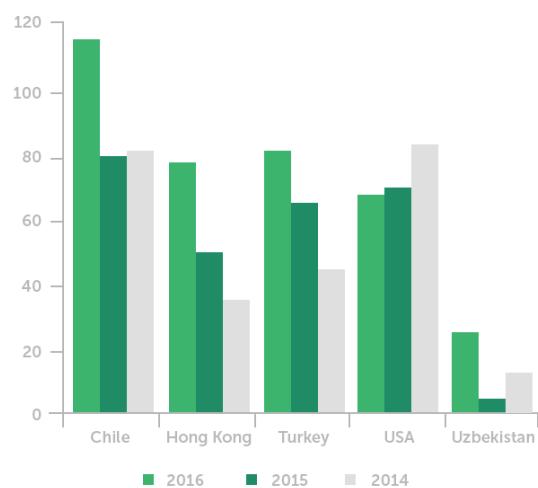
At the same time, the annual volume of world trade in sweet cherries has increased by 40% over the past 4 years and is about 500 thousand tons.

This disproportion in the rates of production and trade indicates a significant redistribution of the market and focusing on the production of cherries in countries with the most optimal growing conditions and exporting it to the main consumers.

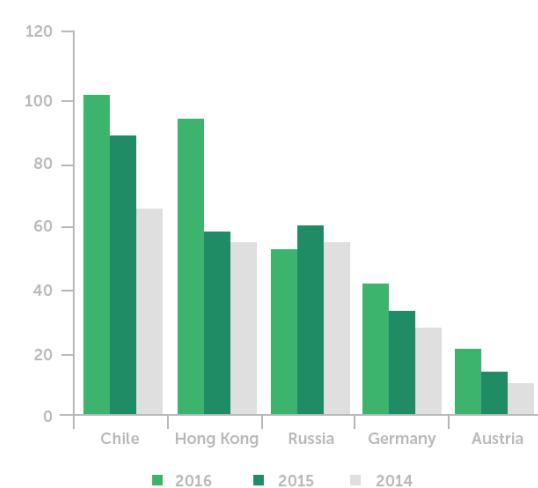
In this situation, we see a significant potential for cultivation of sweet cherries in Eastern Europe. Steppe and forest-steppe zones of Central and Eastern Europe have favorable climatic conditions for the growth of cherries, low cost of land and labor, that allows penetrating the world market with quality products at a competitive price.

An additional factor for optimism is the reorientation of Italy and Spain from the cultivation of cherries to growing kiwi, that reduces their production opening up a capacious EU market for Eastern European sweet cherries.

Dynamics of sweet cherry exports  
by key market participants, kt



Dynamics of sweet cherry imports  
by key market participants, kt



70% of the total exports of sweet cherry in 2016 was from Chile, Hong Kong, Turkey, the United States and Uzbekistan, and the average price of sweet cherry by international contracts was \$4,400 per ton.

At the moment, the absence of Eastern European countries in the sweet cherry market can be explained by the specifics associated with the cultivation of drupes in the Soviet Union and the countries of the Soviet bloc. The tart cherry was widely used in cans, so popular in these countries, while sweet cherry is mostly consumed fresh. It has led to a disproportion in the production and consumption of tart cherries and sweet cherries: in Eastern Europe, on average, their production volumes ratio is 2 to 1, while globally, on the contrary, this ratio is 1 to 2. So, Russia, Ukraine and Poland are the largest producers of sweet cherries in the world (along with Turkey), but these countries do not always fall into the top ten of the largest producers of sweet cherry (unlike Turkey, that is the world leader in its cultivation).



## Annex 1. PILOT PROJECT: TOKENIZATION OF SMARTLANDS ORCHARD

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To achieve high profitability from exporting sweet cherry, it is necessary to meet the following characteristics: a large caliber (30+), an optimal ripening period, a long shelf life (it limits the sugar content), just as the berries should have high organoleptic characteristics. Thus, a very limited list of varieties is suitable for a successful export trade in sweet cherries.



## References

<https://apps.fas.usda.gov/psdonline/circulars/TreeNuts.pdf>

<https://apps.fas.usda.gov/psdonline/circulars/StoneFruit.pdf>

<http://www.intracen.org/itc/market-info-tools/trade-statistics/>

<http://www.fao.org/faostat/en/#data/QC>

<https://ndb.nal.usda.gov/ndb/foods/show/3690?format=Stats&reportfmt=csv&n1=Qv&Qv=1>