



FARM GRID
Africa

Defi yield optimization for
African real farm stakeholders

Litepaper

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FARMGRID
Africa

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- A large, abstract graphic element in the background features several overlapping light green circles and ovals of varying sizes, creating a sense of depth and motion.



FARMGRID
Africa

Maximizing food production in Africa:

A Project on healthy food production and yield optimization for Agricultural Investors.

A large, abstract graphic element consisting of several overlapping light green circles of varying sizes, centered behind the main text.

Abstract

The challenge of feeding our world is immense with a need for rapid increase in global food production and Africa holds the key to feeding the over 9 billion people projected to be on the planet in 2050.

As a reaction to the global food crisis/shortage in Africa, “the hub of food production”, Farm Grid has decided to embark on a project exploring the latest technology to salvage the situation. The time to start is now.

The project essentially addresses these major problems:

- Inadequate food for the exponentially increasing global population.
- Poor returns on investment in the Agricultural sector.
- Inadequate data on sources and authenticity of raw food and livestock products.

Farm Grid solutions:

- The Farm Grid farm-to-store Tracking system based on blockchain.
- Introduction of blockchain technology to enable global participation in food production with the Farm Grid Farming App.
- Provision of adequate funding to farmers to boost productivity in a partnership model.
- Yield optimization for Agro-investors.
- The Farm Grid Metaverse NFT Marketplace.
- Farm Grid swap
- Crop Trading Games (Android / iOs)

Farm Grid token "\$Grid" is the native token of the Farm Grid ecosystem. Grid is decentralized finance built on Binance smart chain and ethereum blockchain. The token will be used in the farm grid ecosystem as incentives for stakeholders, staking rewards, Farm gaming coin, purchasing any farm grid products such as grocery from partner farms, farm grid Metaverse NFTs, participating in farm sponsorship, and performing other activities on the ecosystem including community governance.

Farm Grid will be investing stakeholders and sponsors deposited money periodically to a Defi yield protocol such as xend finance. Our blockchain product is an automated fiat “on-ramps” and “off-ramps”, where stakeholders stake with FIAT (USD, NAIRA, KES, etc); They are connected to a local account number to make a deposit which in turn, the unknown seller's BUSD is posted via XEND SDK.

The APY generated from the Defi protocol will be paid to farm grid stakeholders as return on investment (ROI). Stakeholders and investors will also get ROI on real farm proceeds, thus the earning will be in two-folds (earning in the blockchain staking and actual farm proceeds). Farm grid is integrating blockchain into real farming with over 100% APY. Investment in farm grid is controlled by smart contract.

The farm Grid farm-to-store tracking system does tracking and encryption on food sources, ensuring data accuracy which in turn gives confidence to both retailers and consumers. The system certifies farms and dealers protecting the consumer.

Farm product retailers are trialing and looking to adopt blockchain technology to provide transparency for their products. Additionally, understanding and pinpointing the product source quickly may be used internally, for example to identify products included in a recall. Blockchain is an ideal technology to foster visibility and transparency in the food supply chain.

The Blockchain Technology space is evolving and farm Grid is not left out on these trends. With this, we are building a wide ecosystem that would support and accommodate our Farm Grid NFT marketplace and gaming.

It would interest you to know that we are creating the First Farm Metaverse to emerge from Africa.

Overall, given the overwhelming global population growth, the need for campaigns to increase safe food production cannot be overemphasized. Farm Grid project is highly recommended as it has global value chain impact, economic impact and innovation and skill utilization.

Join the community today and contribute to achieving goal 2 and 3 of the 17 SDGs set by the UN.

Introduction

FARM GRID Africa

Farm Grid Africa is an organization of agricultural, veterinary, health and tech experts with particular interest in improving agriculture in Africa and promoting one health.

ACTIVITIES

1. Cultivation of crop and rearing of animals
2. Farmers education
3. Mobilization of extension workers
4. Vaccination for farm animals
5. Treatment of seedlings for planting
6. Soil nutrient testing
7. Process validation
8. Farm sponsorship programs
9. Veterinary Services
10. Research



Farm Grid is defi yield optimization for African real stakeholders, empowering farmers with blockchain technology and promotion of one health. The German philosopher Ludwig Feuerbach used his famous phrase “We are what we eat”. Therefore, for a healthy world population, we need to intentionally grow and eat healthy and safe food and livestock. Farm grid Africa strives to bring farming to everyone globally irrespective of geographical location, that is global participation in agriculture in Africa. Farm grid also seeks to contribute to achieving two goals out of 17 sustainable development goals (SDGs) stated by the United Nations, which are zero hunger, and good health and well being by partnering with farmers in Africa to boost productivity, educating farmers on world best farming practices and production of safe and healthy livestock for consumption and commercial purposes.

The world is evolving and tending towards blockchain technology and Farm grid is not left out in this trend. Food is one of the basic needs of life. It is a just cause to get involved in food production to benefit the whole human population. Blockchain allows everyone globally to participate in funding farming activities in Africa since lack of funds is one of the major drawbacks in the African farming sector. Blockchain technology is also employed and most trusted in data collection and records.

Gartner, Inc. predicts that, by 2025, 20% of the top 10 global grocers by revenue will be using blockchain for food safety and traceability to create visibility to production, quality and freshness. “Blockchain can help deliver confidence to grocer’s customers, and build and retain trust and loyalty,” said Joanne Joliet, senior research director at Gartner.

Annual grocery sales are on the rise in all regions worldwide, with an emphasis on fast, fresh prepared foods. Additionally, customer understanding has increased for the source of the food, the provider's sustainability initiative, and overall freshness. Grocery retailers who provide visibility and can certify their products according to certain standards will win the trust and loyalty of consumers.

Some grocers have already been experimenting with blockchain and are developing best practices. For example, Walmart is now requiring suppliers of leafy greens to implement a farm-to-store tracking system based on blockchain. Other grocers, such as Unilever and Nestlé, are also using blockchain to trace food contamination.

Grid is integrating blockchain technology into agriculture in Africa and beyond. With Grid, anyone can invest in Agriculture in Africa from any part of the world. Are you willing to participate in healthy food and livestock production in Africa, then be ready to become a holder of the Grid token . You could own a farm in Africa while resident in any part of the world.

Problem Description

WHY FARM GRID PROJECT?

It is proven that agriculture has a very high return on investment when properly done. Farming is one of the oldest professions with a clear purpose of feeding the population and farm produce is in very high demand. Crop farming is a pro life activity as plants purify the air by mopping up Carbon Dioxide and releasing Oxygen for man and animal to breathe.

Problem statement

- ✓ Inadequate food for the exponentially growing global population
- ✓ Inadequate data on sources and authenticity of raw food and livestock products.
- ✓ Poor returns on Investment in Agriculture
- ✓ There are about 855,134,664 malnourished people in the world including women and children
- ✓ A lot of investors want to promote agriculture and food production but do not have access to the real farmers
- ✓ Millions of farmers in Africa even with the natural endowment of a fertile/arable land do not have the necessary resources to produce quality and enough food
- ✓ Due to scarce resources and an attempt to succeed, however, some employ unhealthy tactics towards the production of both livestock and crops
- ✓ Lack of adequate extension services in rural Africa
- ✓ Lack of Youths' involvement in Agriculture

Industry Facts & Research

RESEARCH from FOOD AND AGRICULTURE ORGANIZATION (FAO)

Significant productivity gains have been recorded globally in food production including in Africa, Latin America and Asia. Despite this, the world still has about 700 million people languishing in extreme poverty, 800 million chronic hunger, 2 billion people having micronutrients deficiency and 150 million children under the age of 5 suffering from stunting. The challenge of feeding our world is therefore immense with a need for rapid increase in global food population and Africa holds the key to feeding the over 9 billion people projected to be on the planet in 2050. Africa sits on about 65% of the uncultivated arable land so what we do with agriculture now in Africa will determine the future of food in our world. Therefore more than ever, we must help Africa to rapidly modernize its agricultural sector and unlock all possible potentials thus the birth of the farm grid project.

Data - Hunger in the world 2021



Adapted from FAOSTAT Data 2021

Top insights for Food Markets from reportlinker.com

The UN Food and Agriculture Organization (FAO) expects global food demand to rise by 60%-100% by 2050.

A rapidly rising population and higher urbanization have boosted global demand for processed food products, driving food demand. FAO also estimates that by 2050, to satisfy the demands of this growing and wealthier population with an increased meat demand, food production will have to increase by at least 50 percent: from 8.4 billion tonnes today to 13.5 billion tonnes to provide for a projected population of 9.7 billion in 2050

Nevertheless, the use of protein meal will grow more slowly globally due to a decline in the growth of livestock production and the plateauing of the share of protein in Chinese food consumption.

While China's production is projected to increase by some 31 percent by 2050, food consumption also rises by more than 30 percent during the same period, causing the country to face a small excess demand and to become a net importer to satisfy its aggregate demand needs.

Global sales of organic food and drink increased by 17 percent to \$ 110.25 billion in 2016. The growth in global organic food and beverages market is driven by increasing awareness about health benefits of organic foods which has led to increased organic farming in the world.

Beyond 2030, aquaculture will likely dominate global fish supply, with global aquaculture production of food fish (excluding aquatic plants) expected to reach 93.6 million tonnes by 2030.

Overview per country:

Africa: In 2017, Africa spent \$64.5 billion on food imports and may spend even more in subsequent years, potentially reaching \$110 billion by 2025. By 2030, food demand is projected to increase by 55%, bringing the size of Africa's food and agribusiness to \$1 trillion and opening up huge employment opportunities all along the value chain.

United Arab Emirates: Currently, the value of the UAE halal food industry is US\$18.8 billion whereas overall food consumption in the UAE is growing due to the influx of tourists and population growth. The UAE halal sector

has a great potential worldwide, as the value of the global halal food industry is estimated to have reached USD 1.1 Trillion in 2013 according to recent literature, accounting for more than 16% of the global food market.

Brazil: By 2027, food production in the country is expected to increase by 69% (the highest growth among countries with significant production).

The UN Food and Agriculture Organization (FAO) expects global food demand to rise by 60%-100% by 2050. There is a need to bring crypto funds into agriculture.



Solution we are offering

- ✓ Introduction of blockchain technology to enable global participation in food production.
- ✓ The Farm Grid farm-to-store Tracking system based on blockchain.
- ✓ Provision of adequate funding to farmers to boost productivity in a partnership model.
- ✓ Yield optimization for Agro-investors.
- ✓ Youth involvement in agriculture through blockchain.
- ✓ Farm Grid Swap
- ✓ The Farm Grid NFT Marketplace.
- ✓ Metaverse Crop Trading Game (Android/iOs)
- ✓ In a bid to optimize yield, Farm grid will integrate a Defi yield protocol like Xend finance
- ✓ Representing Farms/ Livestocks as Metaverse NFTs for seamless ownership transfer
- ✓ Farmers sensitization and support through research and effective communication.
- ✓ Promote knowledge about zoonotic diseases and antibiotic resistance among farmers.
- ✓ Help reduce the use of inorganic fertilizers and chemicals on edible crops through extension services.
- ✓ Promote environmental well-being through afforestation and waste management.
- ✓ Market Connect (connecting farmers to buyers across the globe).
- ✓ Giving Farmers/ Agro stakeholders access to Defi without them even knowing it.

Implementation Plans

The Farm Grid Token (\$GRID)

KEY ACTIVITIES IN THE FARM GRID ECOSYSTEM

- ✓ Real farming
- ✓ The farming App
- ✓ Farm sponsorship
- ✓ Farm-to-store tracking system
- ✓ Farm Grid Metaverse NFTs and NFT marketplace
- ✓ Staking the \$GRID token
- ✓ Farm Grid swap
- ✓ Farm Grid Metaverse Games (Android iOs)

Farming in Farm Grid Ecosystem

Farm Grid Africa has been cultivating plants and rearing animals successfully for over a decade applying global best practices including use of organic manure and avoidance of antibiotics and other chemicals in livestocks. With our wide range of expertise and experience, we engage in real farming activities to generate food for the population and good returns for the investors.

We partner with notable large and successful farms across Africa to engage in food and livestock production.

The first Phase is to partner with large farms across Africa where funds locked up for farming would be invested to produce food on a large scale.

The Farming Mobile and web App development follows suit. Our blockchain product is an automated fiat “on-ramps” and “off-ramps”, where stakeholders stake with FIAT (USD, NAIRA, KES etc);

We are building a farming App where our farmers can sponsor a farm from anywhere connected to other farmers around them using our Peer-to-Peer network. Our Farming app does not need prior knowledge in cryptography or crypto-trading. Easy steps are required on the App allowing even crypto trading newbies to join in.

Below are the steps

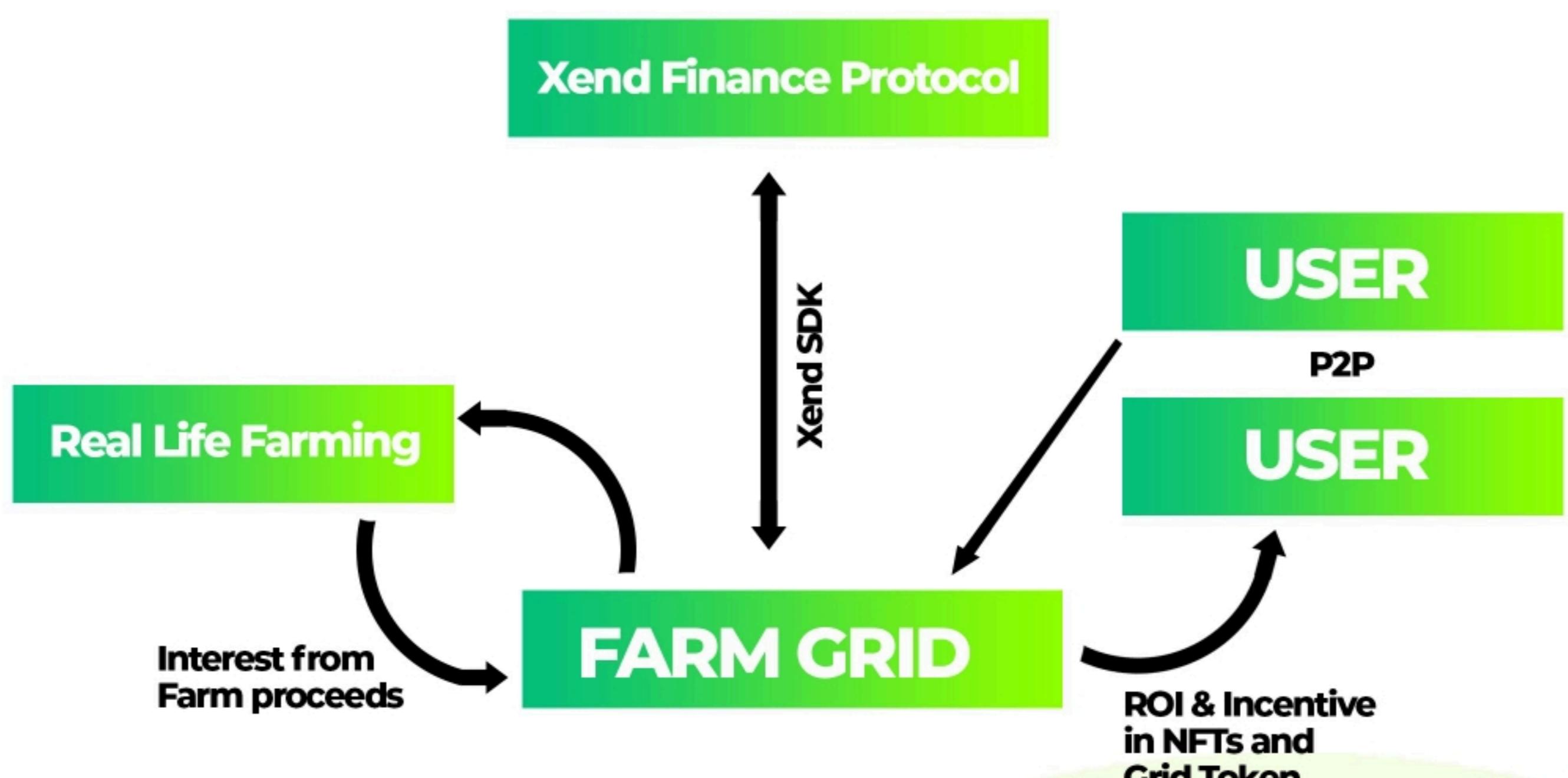
- ✓ Go to the farming section available on our website or download the farming app for optimal experience.
- ✓ Register on the App as a farmer or Farm sponsor, this would create your own dashboard where all your sponsorship and farming activities will be displayed and monitored by you.
- ✓ Choose a farm sponsorship programme to run for the stated period of time.
- ✓ Go to the Peer to Peer network and get connected to a farmer in your locale.
- ✓ A USDT seller's account details are displayed with a local account number to deposit your local fiat to.
- ✓ Connect with the seller and complete your transaction (that is, send local fiat and get USDT displayed on your dashboard)
- ✓ Once you have your farm sponsorship active, the staked USDT will be posted to the layer 2 Defi protocol (Xend finance through Xend SDKs) and also to the real farming process.
- .

FLOW CHART REPRESENTING THE FARM SPONSORSHIP PROCESS

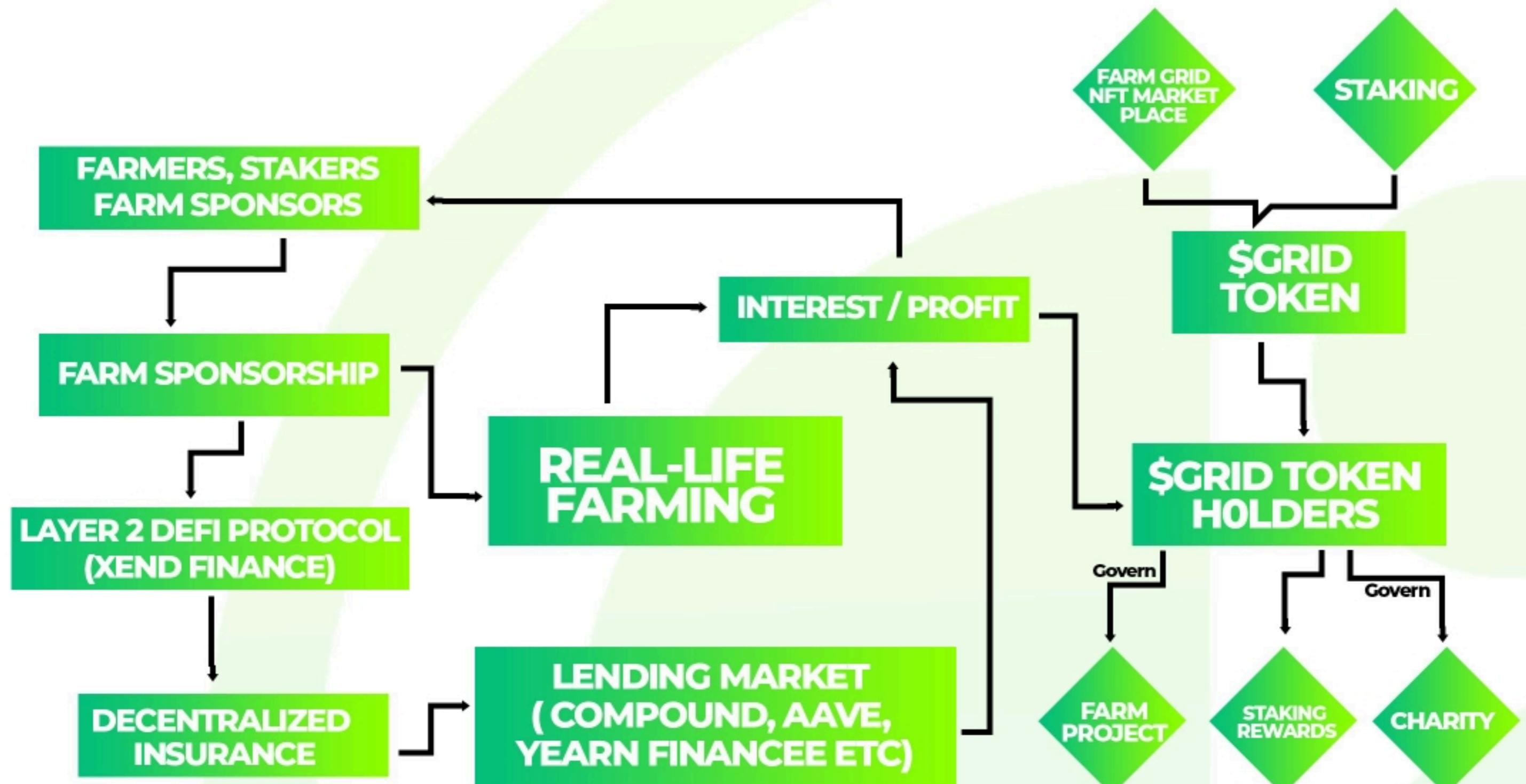


The same process is employed when the stakeholder wishes to terminate his/her contract. Another Farmer ready to sponsor a farm will deposit fiat to the stakeholder's local account using the Peer-to-Peer network also.

The Farm Grid Ecosystem



Peer-to-Peer Network System



The Farm Grid Ecosystem

Farm Grid Reward System And incentive plan

Earning in farm grid gives as high as 72% - 120% APY, this is achieved by allowing farm sponsors to perpetually earn in 3 folds

- ✓ Earning from the layer 2 Defi protocol
- ✓ Earning from real farm proceeds
- ✓ Earning the \$Grid token as incentives

The real life farm proceeds after harvest are shared amongst our farmers, sponsors, stakers, holders of the \$GRID token and charity.

To earn from the real life proceeds as a \$GRID token holder, one must have at least \$2000 worth of the \$GRID token at the time of distribution.

Distribution Plan

- ✓ Stakers
- ✓ Farm Sponsors
- ✓ Holders of the \$GRID token
- ✓ Charity

TOTAL EARNING IN FARM GRID =

Defi protocol earning + real farm earning + earning \$GRID token as incentives.

Farm Sponsorship

The farming seasons are scheduled according to the plants and animals involved.

The farming happens both on the blockchain and in real life. Investors who participate in the farming would lock up their coins for the hesitation period of the plant or animal then reap percentage interest upon completion of the season.

One could auto re-farm or reinvest.

A single farming season is calculated by simple interest but subsequent refarming would be calculated using compound interest. See below for formula and graphical representations.

A minimum amount per unit farm is set and a minimum duration as well. The system is automated and seamless.

An investor could request for real farm produce to be sent to them and we get it done.

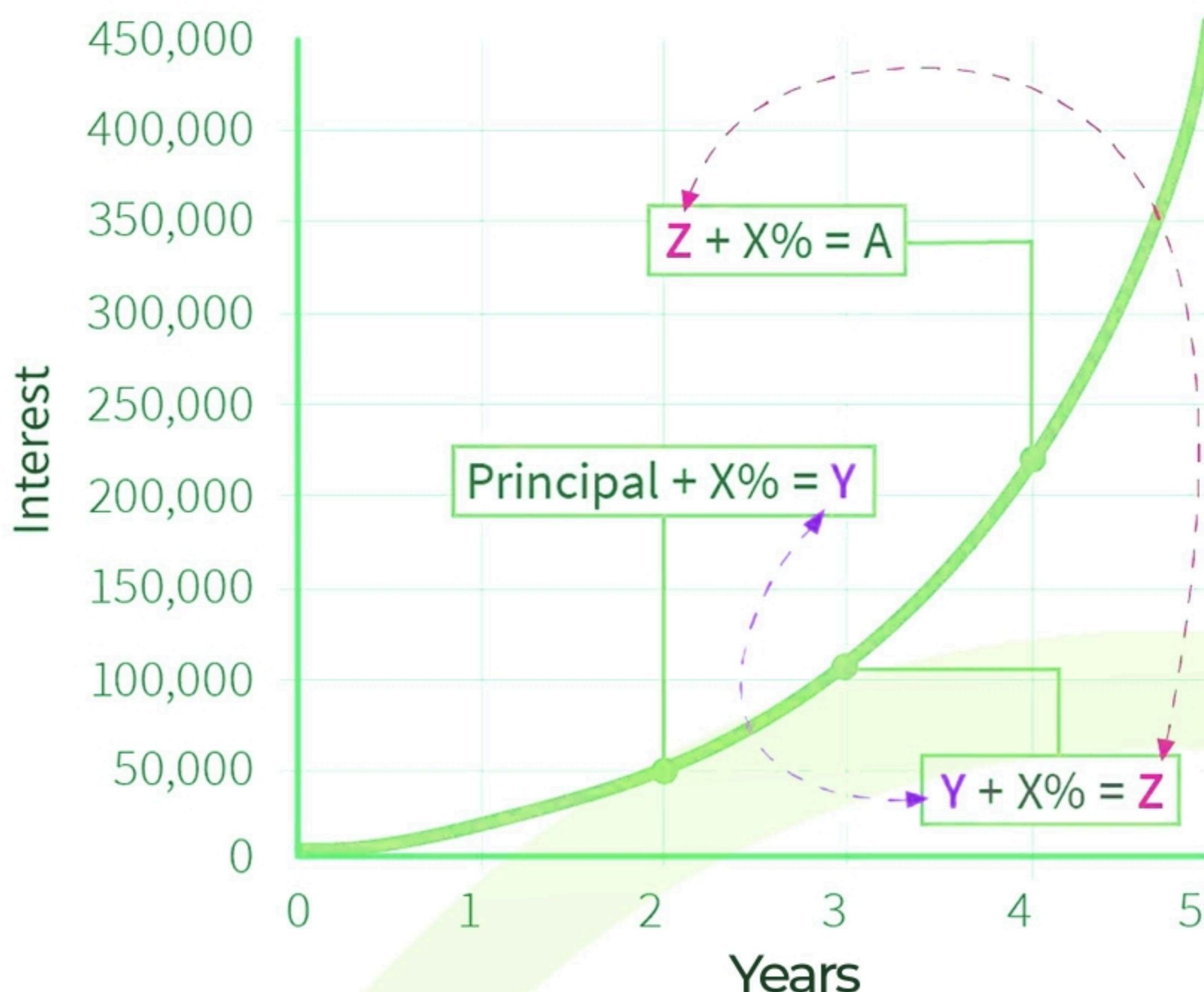
50% of funds generated from Blockchain farming and staking activities are channelled to sponsoring real farms while the remaining 50% is channelled to a Defi yield protocol to maximize yield. We only invest in a farm with comprehensive insurance. maximize returns. At the duration of each term, the capital and the interest are injected back and reinvested into the protocol for the next farming season for those who chose auto-reinvest or paid directly into the sponsor's wallet or bank account as the case may be. Returns are calculated using compound interest.

What Is Compound Interest?

Compound interest (or compounding interest) is the interest on a loan or deposit (staked amount) calculated based on both the initial principal and the accumulated interest from previous periods. Thought to have originated in 17th-century Italy, compound interest can be thought of as "interest on interest," and will make a sum grow at a faster rate than simple interest, which is calculated only on the principal amount.

The rate at which compound interest accrues depends on the frequency of compounding, such that the higher the number of compounding periods, the greater the compound interest. Thus, the amount of compound interest accrued on \$100 compounded at 10% annually will be lower than that on \$100 compounded at 5% semi-annually over the same time. Because the interest-on-interest effect can generate increasingly positive returns based on the initial principal amount, compounding has sometimes been referred to as the 'miracle of compound interest.'

Compound interest is interest calculated on the initial principal, which also takes into account all the accumulated interest of previous periods of a deposits or loan



Adapted from Investopedia.com: Katie Kerpel {Copyright} Investopedia, 2019

The formula for calculating the amount of compound interest is as follows:

Compound interest = total amount of principal and interest in future (or future value) less principal amount at present (or present value)

$$= [P(1+i)^n] - P$$

$$= P [(1+i)^n - 1]$$

Where:

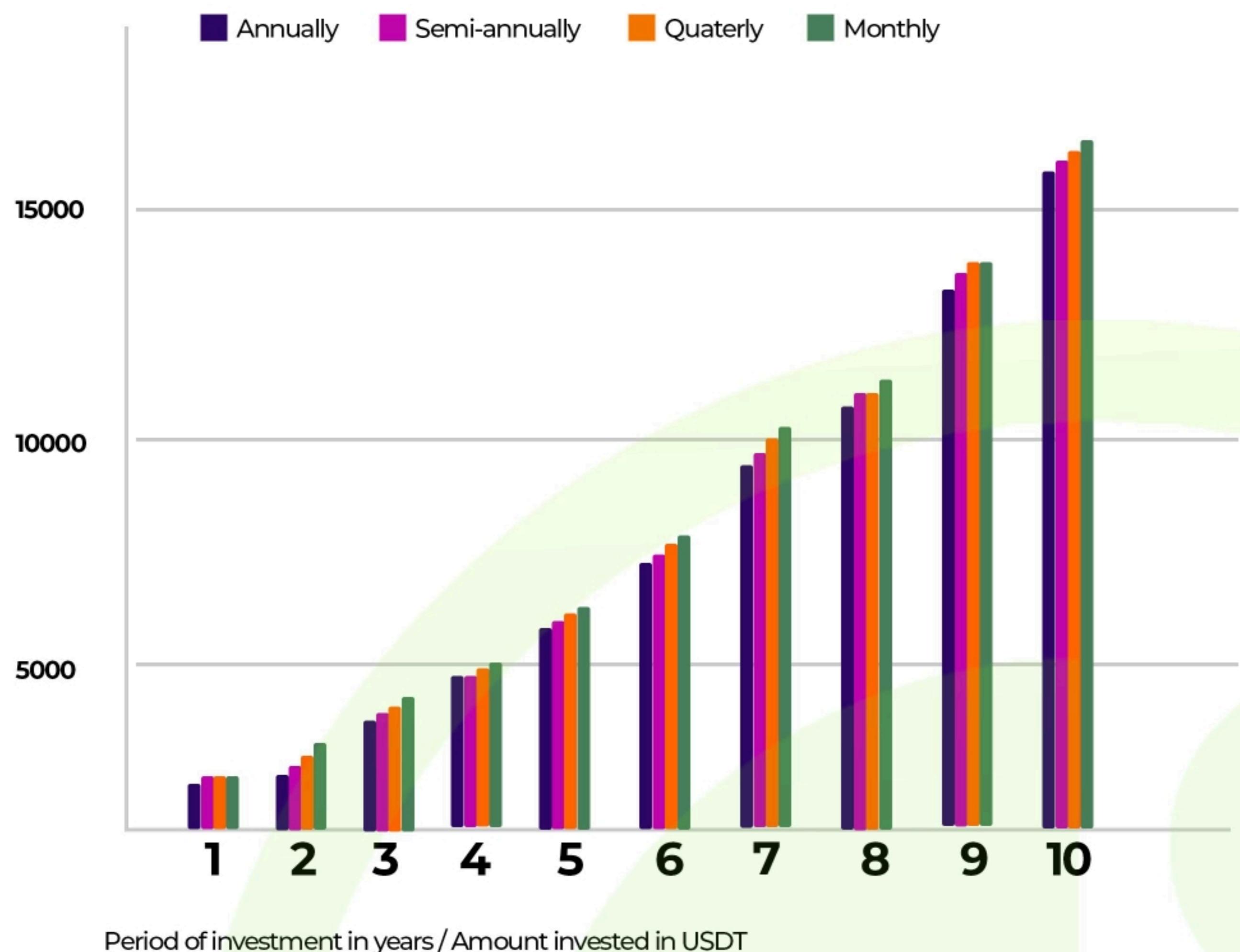
P = principal

i = nominal annual interest rate in percentage terms

n = number of compounding periods.

The Effect of Compounding Periods

More frequent compounding periods mean greater compounding interest, but the frequency has diminishing returns. This example shows the interest accrued on a \$10,000 loan that compounds annually at 10% for four different compounding periods over 10 years.



STAKING

This involves locking up your token for a specified length of time to earn more token. Staking is done to reduce volatility of price and build the value of the token

FARM GRID FARM METAVERSE

Farm Grid is introducing a fresh perspective on the familiar, seamlessly transitioning you from traditional social media to the social Metaverse. In this world you power the economy and control the content – as it should be.

In Farm Grid's corner of the metaverse, primitive as it may be now, players must buy NFTs—the blobby token called \$GRID—before they can play.

The speed at which gaming has proliferated is matched only by the pace of new buzzwords inundating the ecosystem.

FarmGrid is peculiar for seizing opportunities within NFT's and gaming, have latched onto buzzy trends like the applications of blockchain in gaming and the “metaverse” in an effort to get ahead of the trend rather than constantly play catch-up.

What's notable with NFTs in the FarmGrid Agricultural games is that they aren't just digital files to look at. They do stuff, interact with other NFTs and can appreciate over time.

An investor could also build their farm from playing the Metaverse crop farming game and we implement the farm in real life.

STAKING

This involves locking up your token for a specified length of time to earn more token. Staking is done to reduce volatility of price and build the value of the token

EXPORTS

EXPORT OF HEALTHY AGRICULTURAL PRODUCTS

Though Africa has enough arable lands to feed the predicted 9 billion people on the planet in 2050, her exports of agricultural products have declined between the years 1988 to 2014 from 60 to 42 percent.

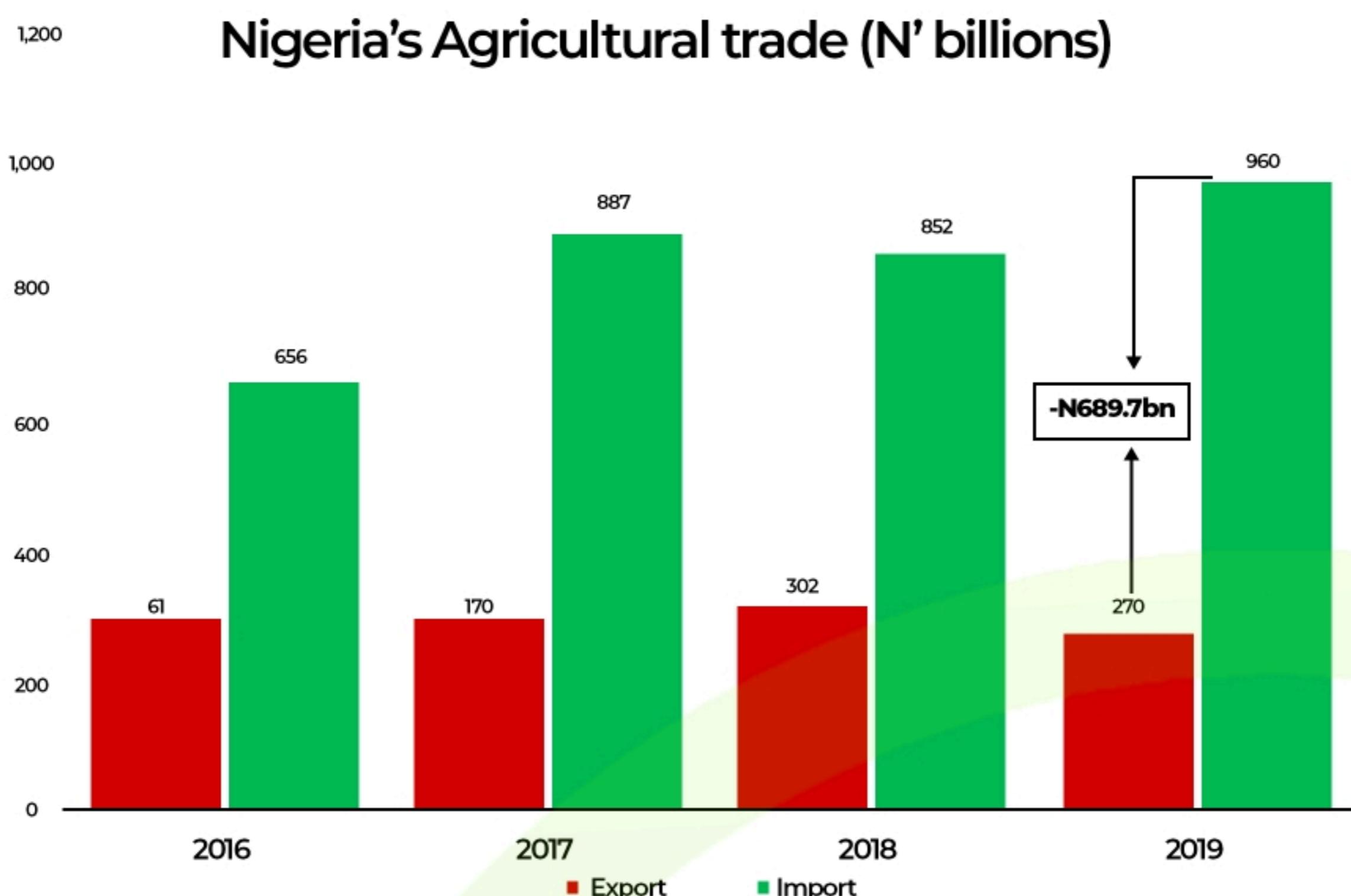
Using Nigeria as a case study

Since the nation's independence in 1960, agriculture had been the mainstay of the nation's economy, providing the largest chunk of foreign exchange inflow into the country. It contributed about 63 percent to the nation's Gross Domestic Product (GDP), according to official statistics. However, With the dramatic shift of focus to crude oil exploration of the 1970s, agriculture was displaced as the nation's main foreign exchange earner.

Being a country that once depended on Agriculture, Nigeria as a country has imported more than it has exported agricultural products in recent times.



In four years (2016-2019), Nigeria's cumulative agricultural imports between 2016 and 2019 stood as N3.35 trillion, four times higher than the agricultural export of N803 billion within the same period



Source: NBS, PuC analysis

One key area Farm Grid focuses on and generates revenue from is Exports of healthy agricultural products. Having in mind the high risks of antibiotic resistance, Farm Grid is employing the best agricultural practices in rearing birds and cultivation of plants making these agricultural products the best fit for international export and consumption. Farm Grid is set to collaborate with the Nigerian Export Promotion Council to facilitate the export of Farm Grid products into the International market.

Export growth plays a crucial role in overall development, especially by driving economic growth, creating jobs, and providing an important source of foreign exchange. Farm Grid is not only Providing adequate funding to farmers to boost productivity, Farm Grid will also assist in increasing the country's exports and promote investment in the sector, exporting up to 60% of its agricultural produce.



RISK MANAGEMENT

- Animals Death
- Plants Death

LOSS MINIMIZATION PROTOCOL

Farm grid is assumed to be an ecosystem that could loose products/Money in the farm represented as Farm (signal) loss and we are using smart contract to handle loss attenuation.

An excellent approach that minimizes loss in the farms and optimizes yield. We are careful with Investors' money and have taken our time to come up with this project exploring the vast benefits and tackling the possible limitations experienced by regular farmers.

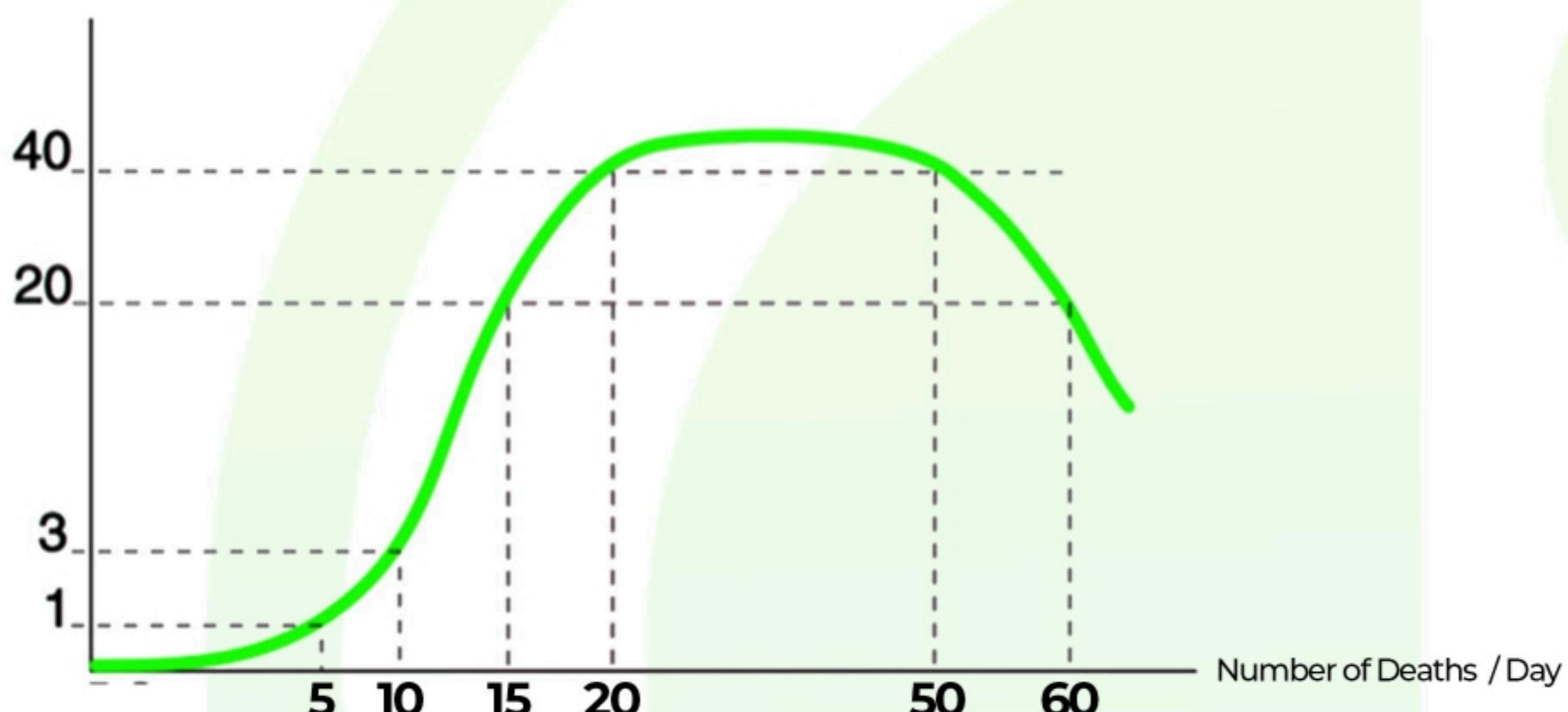
MATHEMATICAL MODELLING OF LOSS ATTENUATION IN FARM GRID

Attenuation of Losses in Poultry Farm represented in formular below:

$$\text{Attenuation (dB)} = 10 \times \log(\text{PI}/\text{PO})$$

Where PI is the initial number of birds and PO is the final number of birds.

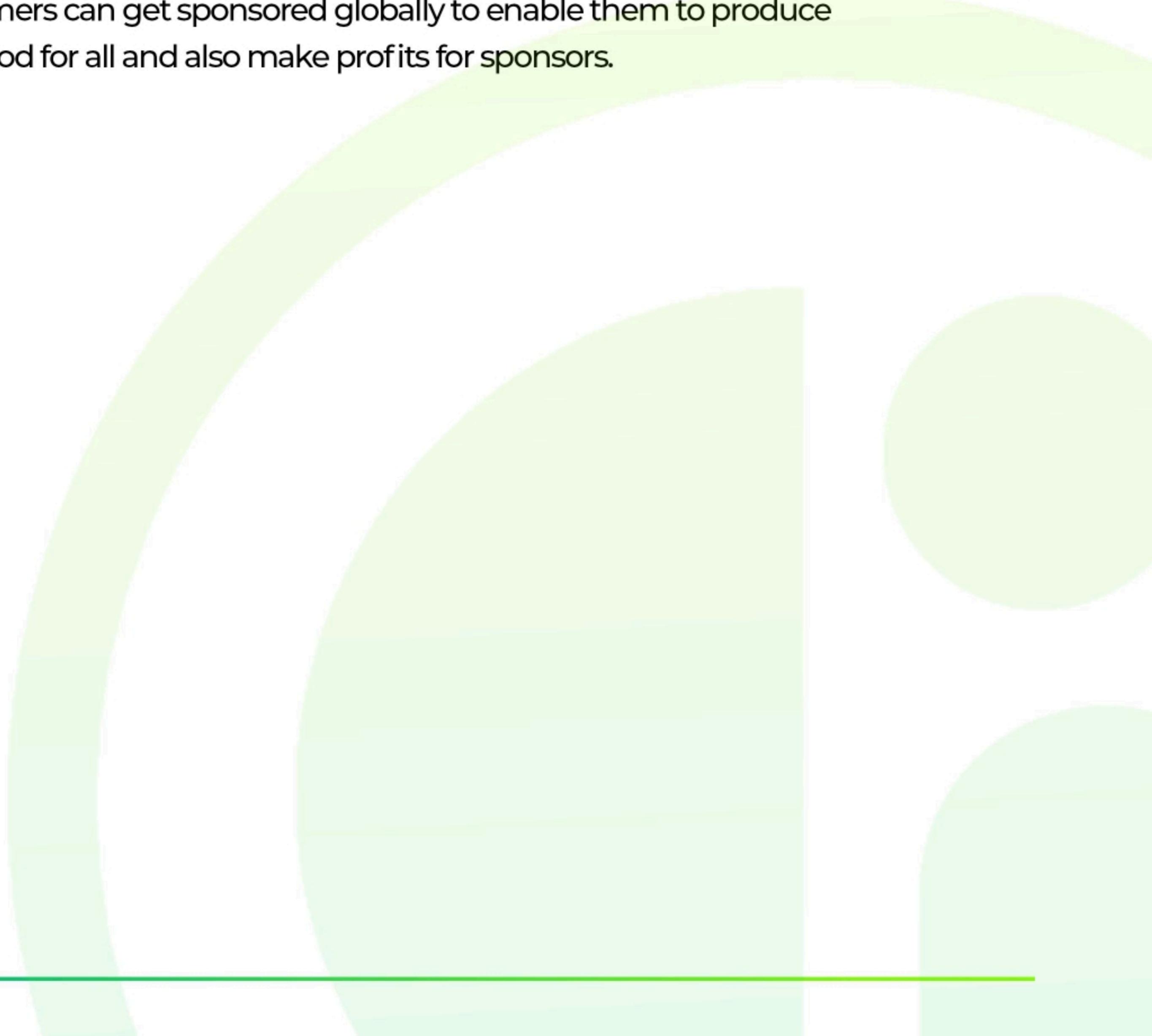
With the attenuation principle, losses in the farm are minimized to an insignificant level. So, in a farm of 10,000 birds, 1000 birds could be tagged the attenuators and thus farm output and capacity is calculated using $N = 9000$. Losses occur more at the early stage of the birds' life cycle then attenuation of death comes in and shows a significant decrease in loss as shown below



NOTE: Farm Loss Attenuation is our success secret that has worked over the years in Farm Grid test farm.

Conclusion

The world population increases every second and thus there is an increasing global need for quality food production. The majority of the farmers that feed the world through their farming activities are living in abject poverty and thus have very limited resources to produce as required. About Seven thousand persons die of hunger daily and over Eight hundred million persons are malnourished globally according to UN-FAO. Africa has a gift of good arable land that blossoms food production but lacks the resources to optimize this wonderful gift of nature. Food is one of the basic needs of life and that suggests high demand. The need for food globally has never been met. That is why Farm Grid in line with the United Nations SDGs II and III provides a platform where farmers can get sponsored globally to enable them to produce enough food for all and also make profits for sponsors.



References

1. Cherno M. Feuerbach's "Man is what he eats": a rectification. *J Hist Ideas.* 1963;24(3):397–406. doi: 10.2307/2708215
2. <https://www.gartner.com/en/newsroom/press-releases/2019-04-30-gartner-predicts-20-percent-of-top-global-grocers-wil>
3. <https://www.gartner.com/smarterwithgartner/the-reality-of-blockchain/>
4. Katie Kerpel {Copyright} Investopedia, 2019. <https://www.investopedia.com/terms/c/compoundinterest.asp>.
5. https://www.reportlinker.com/market-report/Food/793/Food?term=stats%20food&adgroup=112459369574&matchtype=b&utm_term=stats%20food&utm_campaign=slp&utm_source=google&utm_medium=paid%20search&hsa_acc=9351230540&hsa_cam=55311601&hsa_grp=112459369574&hsa_ad=514466274948&hsa_src=s&hsa_tgt=aud-752019052016:kwd-531898081117&hsa_kw=stats%20food&hsa_mt=b&hsa_net=adwords&hsa_ver=3&gclid=EAIalQobChMloO-o1sz_8wIV0eJ3Ch2OBwjEAAYAiAAEgIANvD_BwE



Appendix

PROFIT AND LOSS ANALYSIS IN POULTRY FARM

A case study of 500,000 broiler birds (Adapted from Farm Grid documents)

POULTRY FARM

TYPE: BROILER

NO OF BIRDS: 500,000

DURATION: 6 WEEKS

Table 1: Vaccines and drugs

DAY	DRUGS/VACCINE	QUANTITY	UNIT PRICE (N)	TOTAL (N)
7 (1 week)	Lasota Vaccine	500	1,200	600,000
14 (2 weeks)	Gumboro Vaccine	500	2,600	1,300,000
21 (3 weeks)	Lasota Vaccine	500	1,200	600,000
28 (4 weeks)	Gumboro Vaccine	500	2,600	1,300,000
	Vitamins	3,400	5,000	17,000,000
	Anticoccidials	10,000	1,500	15,000,000
	Antibiotics	4,500	4,000	18,000,000
Grand Total				53,800,000



Table 2: Feed Consumption per bird

AGE (Week)	Feed Consumed per bird (Kg)	Cumulative Feed Intake (Kg)	Average Body Weight(Kg)
1	0.141	0.141	0.071
2	0.212	0.353	0.177
3	0.402	0.755	0.378
4	1.101	1.856	0.928
5	1.233	3.089	1.545
6	1.452	4.541	2.271

1 bird will consume approximately 4.5kg of feed in 6 weeks .

Therefore 500,000 birds will consume $500,000 \times 4.5\text{kg} = 2,250,000\text{kg}$

1 bag of feed=25kg which means that 500k birds will consume 90,000 bags of feed in 6 weeks.

1 bag of feed = N6,600

Therefore 500,00 birds will consume $6600 \times 90,000 = \text{N}594,000,000$.

Table 3: Summary of production cost per bird

ITEMS	Cost (N)	Cost for 500k birds (N)
Stocking	500	250M
Feed	1,188	594M
Vaccine	7.6	3.8M
Drugs	100	50M
Gas	30	15M
Veterinary Services	20	10M
Labour/Salaries	120	60M
Litter	5	2.5M
Transport	15	7.5M
Miscellaneous	10	5M
TOTAL	1995.6	997.8M

Average mortality rate is at 5% which is
25,000 birds =N49,890,000

Price per kg bird is N1100 which is
2.271kg x 1100 =N2,498.1

Profit =2,498.1-1995.6 = N502.5 per bird

500k birds will give $502.5 \times 500000 = \text{N}251,250,000$

$(\$448,660.714) * \$1 = \text{N}560$



POULTRY FARM

TYPE: LAYERS

NO OF BIRDS: 500,000

DURATION: 17 WEEKS

Table 1: Vaccines and drugs

DAY	DRUGS/VACCINE	QUANTITY	UNIT PRICE (N)	TOTAL (N)
7 (1 week)	Lasota Vaccine	500	1,200	600,000
14 (2 weeks)	Gumboro Vaccine	500	2,600	1,300,000
21 (3 weeks)	Lasota Vaccine	500	1,200	600,000
28 (4 weeks)	Gumboro Vaccine	500	2,600	1,300,000
42 (6 weeks)	Fowl pox Vaccine	500	2,200	1,100,000
42 (6 weeks)	Komarov	500	24,000	12,000,000
119 (17 weeks)	EDS	500	25,000	12,500,000
	Vitamins	3,400	5,000	17,000,000
	Anticoccidials	10,000	1,500	15,000,000
	Antibiotics	4,500	4,000	18,000,000
Grand Total				79,300,000



Table 2: Feed Consumption per bird

AGE (Week)	Feed Consumed per bird (Kg)	Cumulative Feed Intake (Kg)	Average Body Weight(Kg)
1	11	0.1	0.06
2	17	0.2	0.12
3	25	0.4	0.19
4	32	0.6	0.27
5	37	0.9	0.36
6	42	1.1	0.45
7	46	1.5	0.54
8	50	1.8	0.63
9	54	2.2	0.72
10	58	2.6	0.81
11	61	3.0	0.90
12	64	3.5	1.00
13	67	3.9	1.09
14	70	4.4	1.18
15	73	4.9	1.26
16	76	5.5	1.35
17	80	6.0	1.42
18	87	6.6	1.47
19	88	7.2	1.50
20	94	7.8	1.55

1 bird will consume approximately 7.8kg of feed in 20 weeks .

Therefore 500,000 birds will consume $500,000 \times 7.8\text{kg} = 3,900,000\text{kg}$

1 bag of feed=25kg which means that 500k birds will consume 156,000 bags of feed in 20 weeks.

1 bag of Chick mash = N6,600 \times 54,000 bags = N356,400,000

1 bag of Growers mash = N5,200 \times 102,000 bags = N530,400,000

Therefore 500,00 birds will consume 886,800,000.



Table 3: Summary of production cost per bird

ITEMS	Cost (N)	Cost for 500k birds (N)
Stocking	400	200M
Feed	1,773	886.5M
Vaccine	58.8	29.4M
Drugs	100	50M
Gas	30	15M
Veterinary Services	20	10M
Labour/Salaries	120	60M
Litter	5	2.5M
Transport	15	7.5M
Miscellaneous	10	5M
TOTAL	2,531.8	1,265,900,000

Average mortality rate is at 5% which is 25,000 birds =N63,295,000

At 20 weeks the birds will start laying for the next 18 months

At 30% lay , 500k birds will consume 2,000 bags of layers mash per day

$2000 \times 5500 = N11,000,000$

Number of egg per day =30% of 500k=150,000 eggs= 5,000 crates

$5,000 \text{ crates} = 5000 \times 1,400 = N7,000,000$

But feed per day is N11,000,000.

At 70% lay (1month from onset of lay) 500k birds will consume

$2,200 \text{ bags of layers mash}= 2200 \times 5500=N12,100,000$

Number of egg per day= 70% of 500k=350,000 eggs =11,666 crates

$11,666 \text{ crates}=11666 \times 1400 = 16,332,400$

Profit from 70% to 80% will be around 4m to 6m daily respectively



RICE PRODUCTION

ITEMS	QUANTITY (tons/ha)	UNIT PRICE (N) (N/ton)	TOTAL (N)
Revenue (sales)	5	200,000	1,000,000
Total Revenue (TR)			1,000,000
Variable Costs			
Cost of Seeds	50kg		25,000
Cost of weeding			30,000
Cost of Transportation			17,500
Cost of Harvesting + Threshing + Winnowing			130,000
Cost of Fertilizer	6Bags		69,000
Cost of Herbicide and Application	6Litres		38,800
Cost of Bags	35	100	3,500
Cost of Planting			70,000
Cost of Fertilizer Application			3,000
Land preparation/cultivation			85,000
Insecticide			5,000
Total Variable Cost			476,000
Gross margin			524,000

Table Using Faro 44

Maturity 100-200 days (3 to 4months)



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