

**Implementation Plan for Mkulazi Farm
at Ngerengere, Morogoro**

November 2024

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1. EXECUTIVE SUMMARY

Santagro Limited (herein referred to as “Santagro”), an agribusiness company established in Tanzania for modern farming investment. Mkulazi Project under Tanzania Investment Center (herein referred to as “TIC”) is a modern and sustainable farming venture dedicated to sugarcane, soybean and maize crops. Situated in Mkulazi Area, Ngerengere, Morogoro region with a total area of 60,000 hectares, where Santagro has been allocated for 10,000 hectares, with a possibility to extend for another 10,000 hectares in the future. Our mission is to provide high-quality and high-yield crops, through applying modern farming techniques, to meet the growing demand for international and local consumption markets.

The total project investment for 10,000 hectares will be around USD 22,000,000 in modern farming for two seasons of soybean and yellow maize rotation planting, including grain processing plant investment. The Project will develop the land into a fully operational modern farm gradually in three phases. To accelerate and ensure the large scale of project implementation, Santagro is ready with its own equity as well as raising more commercial loans for expanding and operationalizing the farms. Financially, the investment is feasible with positive cash flow throughout the investment.

The project aims to hire 80 local full-time employees under Mkulazi Project, create additional over 400 seasonal jobs for the surrounding youths and women, as well as engaging over 500 indirect jobs through this investment, including farm management, machine operation, grain processing, storage and logistics in the future. Also, through this project, Tanzanian soybean and yellow maize export to China will increase by 95,000 metric tonnes per year, consisted by 35,000 metric tonnes of soybean and 60,000 metric tonnes of yellow maize. This outcome will meet two main objectives of the Tanzania Development Vision 2025: (1) to achieve quality and good life for all; (2) to build a strong and resilient economy that can effectively withstand global competition.

2. INTRODUCTION

2.1 About the Background

Youths in Tanzania comprise about 40% of the entire population and over 80% of the national labor force. However, despite the increase in skilled graduates from learning institutions, the country’s economic ability to produce formal employment for nearly 800,000 annual new entrants in a highly competitive labor market has remained substantially disproportionate at less than 10%. Therefore, more than 20 million youths in Tanzania remain unemployed or competing for hands-to-mouth informal jobs provided by a highly unorganized informal sector. Several factors contributed to and maximized the youth unemployment situation over the years, such as the rapidly growing population at an average rate of 3%, the slow relative inclining productivity growth rates of the Agriculture Sector at about 4% and disproportionate relations between the skillsets of graduating populations and the immediate skillsets demanded by the labor-intensive sections of the national economy.

Over the years, the Tanzanian government has employed cross-sectoral interventions primarily targeting the supply-side of the labor-intensive sectors of the national economy, such as technical skills development and providing funds for youths. In this case, regardless of the efforts put by the government and partners, and while Tanzania stands on competitive geographical and climatic advantage for agricultural production, there has not been sustainable and scalable efforts that harness the readily available workforce for agriculture to create sustainable jobs and increase agricultural production in the country.

The critical challenge in soybean and yellow maize production arises from an imbalanced supply-demand relationship between smallholder farmers, primary processors, and industrial food

producers. Seasonal fluctuation in farm productivity means processing factories cannot rely on a sufficient, regular supply of soybean and yellow maize when there is demand and so are forced to operate below capacity. In turn, industrial processors cannot contract local farmers, given the inconsistency in soybean and yellow maize production. This creates a regular demand-supply deficit, which has resulted in the under-development of the soybean and maize industry in Tanzania, regardless of the massive available local and international market opportunities.

To this end, Santagro will invest agricultural inputs (such as seeds, fertilizers, and crop protection products) to farms in the project regions in Mkulazi to grow and export soybean and yellow maize to China, or to support local consumption if necessary. With China being the largest importer of soybean and yellow maize globally, the investment will successfully turn Tanzania into a strategic production hub of soybean and yellow maize for export to China in the future. In addition, Santagro will manage the operations of the project farms and oversee the process of onboarding out growers surrounding the farm, if any. The participants will follow operational guidance and hire machinery field services from Santagro, grow and sell the grains to Santagro.

2.2 Investment Scale and Funding

Up to the 4th year of the project, the expected total investment from Santagro will be more than USD 22 million, consisted by USD 15 million of fixed assets investment, USD 7 million of operational cash flow for agricultural inputs in the early stage. To accelerate and ensure the large scale of project implementation, Santagro is currently looking to invest in facilities and equipment to support the operation of the designated farms in the project regions in Tanzania.

3. MARKET ANALYSIS SUMMARY

3.1 Status of Soybean Farming

Soybean is one of the world's largest protein crops and the most efficient protein source per hectare. Global production stood at 320 million tonnes, mainly from North America and Brazil, while Africa contributes less than 1% of global soybeans production. China by far is the world's largest consumer and importer of Soybeans, with demand exceeding 100 million tonnes per year, and yellow maize, with demand exceeding 28 million tonnes per year. In 2022, China imported Agricultural produces worth USD 110 billion; out of that, USD 35 billion alone went into buying soybeans and USD 8 billion on buying yellow maize.

Tanzania's production of soybean is little around 40,000 tonnes, up 100% from 2 years ago, highlighting appetite to start producing more soybean due to recent promotions by the government and demand from a ready market both local and exportation. While Tanzanian production is insignificant compared to the world production level, the country has one of the strong farming ecosystems driven by a significant number of the energetic youth and woman population, political stability, stable economic growth, good geography, and a supportive government. If well nurtured and supported, the farmers in Tanzania can successfully boost soybean and yellow maize production and export potential.

Tanzania has approximately 44 million hectares of land suitable for cultivation, of which 29 million hectares are ideal for irrigation but currently not under cultivation. Also, Tanzania enjoys direct access to the Indian ocean and seaports to facilitate exports of its products. Also, the government, in line with its goal to support farmers in Tanzania, is currently reviewing its development policy to enhance the macro and micro regulatory environment to be conducive for farmers.

3.2 Market Opportunity

Santagro is interested in building value chain of soybean and yellow maize in Tanzania, covering agriculture inputs supply, farm management, grain processing, logistics and seed production in the future. To suffice this market, Santagro and the local partners have arranged to execute the expression of interest in phases one by starting with 95,000 metric tonnes per year, which could be traded to China or other international markets.

Even within Tanzania, the demand for soybeans and yellow maize remains robust, driven by a combination of factors such as population growth, changing dietary preferences, and the expanding livestock and poultry industries. As the population increases, there is a rising need for protein-rich food sources, spurring the demand for soybeans as a key ingredient in various food products. Additionally, the livestock sector's growth contributes to the demand for both soybeans and yellow maize, which are vital components in animal feed production. The versatility of these crops, serving both human and animal consumption, underscores their significance in Tanzania's agricultural landscape, making them pivotal commodities for farmers and agribusinesses alike.

4. OPERATION AND IMPLEMENTATION

4.1 Operational Strategy

Management: Santagro, a fully independent agribusiness management company, through the support from Tanzanian government (Ministry of Agriculture), will oversee and run the project.

The Model: In this project, Santagro will be responsible for managing the Mkulazi farm area to cultivate by its own crops to demonstrate large-scale modern farming.

The Location: The farm will operate at Mkulazi, in Morogoro region, where is well known for agriculture as the main economic activity and contributor to the national food reserve. The area has fertile land to produce food and cash crops, including soybeans and yellow maize. Apart from farming crops, the region is involved with livestock keeping, which could open a market for product of feeds after processing. Further, the geography and climate of the region have created huge potential in two season crop rotation planting and have attracted interest from actors in the agricultural sector, leading to the establishment of crucial infrastructures needed for large-scale farming.

Production Capacity: The farm size is 10,000 hectares with the capacity to produce 30,000 metric tonnes for a single season's soybean harvest, and 65,000 metric tonnes for a single season's yellow maize harvest. The farm will have two growing seasons per year, with soybean and yellow maize rotation, bringing the annual harvest to 95,000 metric tonnes.

Logistics: Santagro will establish its own truck fleet and will partner with other logistics companies in Tanzania, so it will transport the produces to the warehouse or silos and storage facilitates.

4.2 SWOT Analysis

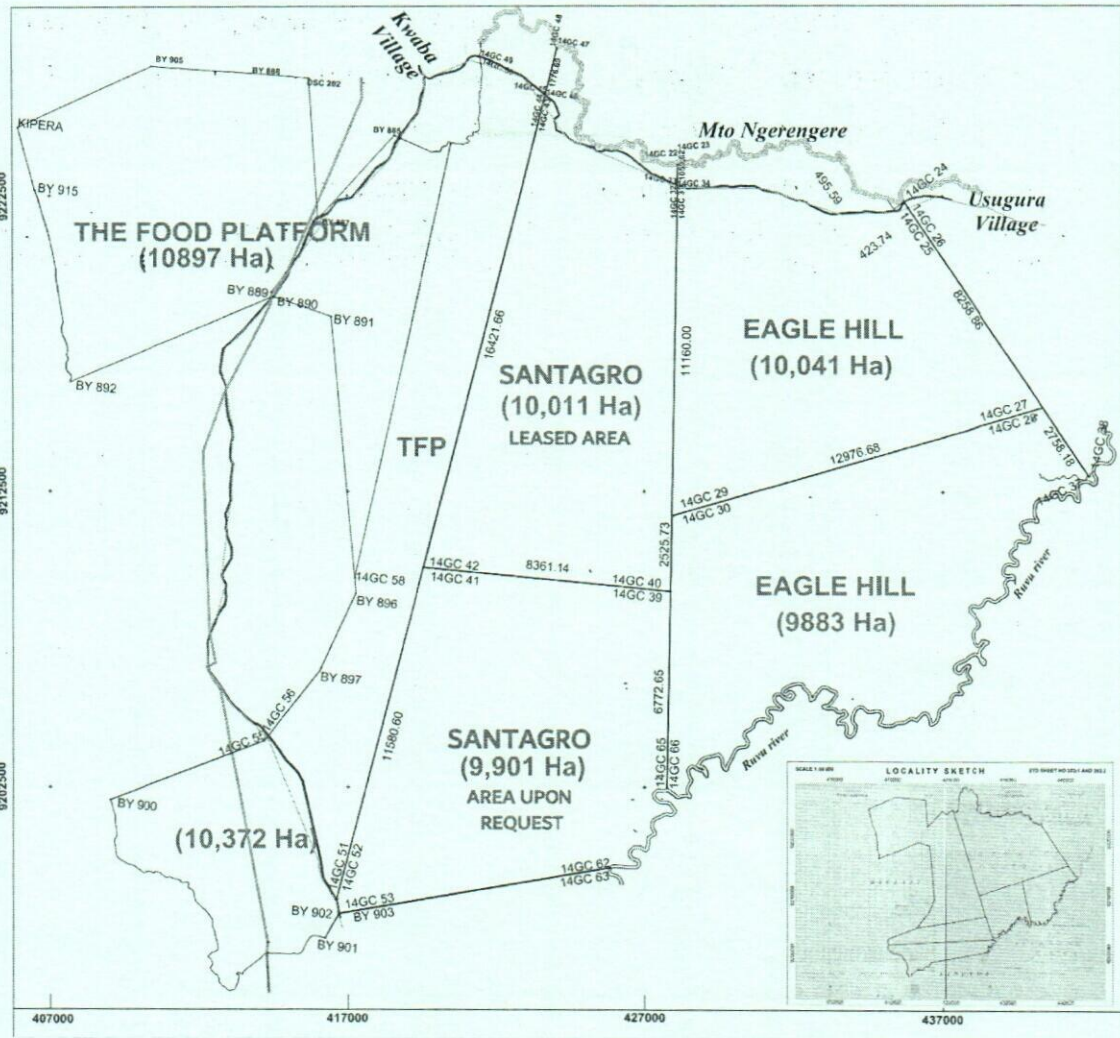
The SWOT analysis aids in displaying the internal strengths and weaknesses that the project must address. In addition, it allows us to examine the opportunities presented to the project and the potential threats.

Strength	Weaknesses
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<ul style="list-style-type: none"> i. A team with over 25 years of combined experience in the key areas of the business. ii. Ability to produce throughout the year which ensures consistent supply to the buyers. iii. Partnership with reliable off-taker for all the farms produce which also meant to cut distribution costs. 	<ul style="list-style-type: none"> i. Santagro's major weakness is lack of local facilitation in obtaining project farm lands in each region.
Opportunities	Threats
<ul style="list-style-type: none"> i. Increased handling capacity by the partner. ii. Growing trends for soybean and yellow maize subsector in local and global markets as people move to plant-based proteins. iii. Production gap that smallholder farmers fail to fill due to inconsistent production caused by climate changes. iv. Availability of "precision farming" technological tools meant to make our farm highly efficient. 	<ul style="list-style-type: none"> i. Competition from the rest of the producers in the world, such as US and South America.

5. ACTION PLAN AND INVESTMENT ANALYSIS

The Mkulazi project is located at Ngerengere, in Morogoro region as shown in below. The total area is around 60,000 hectares and four investors have been allocated relevant areas, including Santagro has been located for approximately 10,000 hectares.



5.1 Action Plan – 3 phases of farming with processing plant in 4 years

Santagro plans to clear the 10,000 hectares virgin land in 3 phases, by clearing 100 hectares and 4,900 hectares in each of the 1st and 2nd phases, and clearing 5,000 hectares in the 3rd phase, while finishing the grain processing plant construction.

Phase	Area (hectare)	Activities
1	100	Land clearance, and testing for crop adaptation
2	4,900	Land clearance, planting and harvesting
3	5,000	Land clearance, planting and harvesting
Total	10,000	Full operation for both maize & soybean crops

Below is the anticipated project plan for the construction and operationalization of the farms in the Mkulazi farm. The total assumption is based on the legal document being clearly entitled to Santagro soon.

Mkulazi Project Timeline

N#	Activity	Months	Year	Phase	
1	Project General Evaluation	September	2024	1	
2	Investment Plan			1	
3	Living Facilities Design			1	
4	Storage Facilities Design			1	
5	Irrigation Project Design			1	
6	Equipments Transportation			1	
7	Land Clearing (1st Going)	October		1	
8	Land Clearing (2st returning)			1	
9	Uprooting big trees			1	
10	Raking			1	
11	Heavy Harrow	October - November	1		
12	Intermediate Harrow		1		
13	LimeStone Spreader		1		
14	Leveller Harrow		1		
15	Planting	December-January	2024/2025	1	
16	Top Dressing	December-February		1	
17	Self-Propelled	November-April		1	
18	Harvesting	April-May	2025	1	
19	Transshipment	May-June		1	
1	Irrigation Project Execution	June-September		2	
2	Storage Facilities Execution			2	
3	Living Facilities Execution			2	
4	Permanent Site Construction			2	
5	Land Clearing (1st Going)			2	
6	Land Clearing (2st returning)			2	
7	Uprooting big trees			2	
8	Raking			2	
9	Heavy Harrow			September -November	2
10	Intermediate Harrow				2
11	LimeStone Spreader		2		
12	Leveller Harrow		2		
13	Planting	November-January	2025/2026	2	
14	Top Dressing	December-February		2	
15	Self-Propelled	November-April		2	

16	Harvesting	April-May	2026	2	
17	Transshipment	May-June		2	
1	Irrigation Project Execution			2	
2	Equipments Transportation	June-July		3	
3	Land Clearing (1st Going)	July-September		3	
4	Land Clearing (2st returning)			3	
5	Uprooting big trees			3	
6	Raking			3	
7	Heavy Harrow			3	
8	Intermediate Harrow			3	
9	LimeStone Spreader	September -November		3	
10	Leveller Harrow			3	
11	Planting			3	
12	Top Dressing	December-February		2026/2027	3
13	Self-Propelled	November-April			3
14	Harvesting	April-May	2027	3	
15	Transshipment	May-June		3	

5.2 Action Plan – Land Preparation

Land preparation refers to the set of activities and processes involved in getting the soil ready for cultivation. This crucial step in agriculture aims to create an optimal environment for the growth of crops. Land preparation typically includes several key tasks:

- 1) **Clearing and Cleaning:** Removal of debris, rocks, and any existing vegetation from the land to provide a clean and open space for cultivation.
- 2) **Plowing:** Turning over the soil using plows or other implements to break up the soil, bury crop residues, and promote aeration.
- 3) **Harrowing:** Breaking down clods of soil and further smoothing the surface after plowing, creating a finer seedbed.
- 4) **Leveling:** Ensuring an even surface by removing high spots and filling in low areas, promoting uniform water distribution during irrigation.
- 5) **Adding Amendments:** Incorporating organic matter, fertilizers, or soil conditioners to enhance soil fertility, structure, and nutrient content.
- 6) **Marking Rows or Beds:** Designating the layout for planting rows or beds to optimize spacing and facilitate crop management.
- 7) **Weed Control:** After the planting of grains, it is important to pay attention in the weed growing.

Land preparation is a critical determinant of crop success, influencing factors such as seed germination, root development, and overall crop health. The specific methods employed depend on the type of crop, soil characteristics, and local agricultural practices.

5.3 Important Assumptions

- The farm will conduct rotation planting in two seasons.
- Start with 100 hectares in Year 1 as testing field, then grow to 10,000 hectares in Year 3.
- Yield per hectare is considered to grow year by year, considering virgin land needs to be prepared and become mature year over year.
- Variable costs include all necessary inputs are required in actual farming scenario.
- Depreciation has considered the fixed assets depreciate in 10 years, including machines, office buildings, and processing plant and storage facilities.

Inputs & Costs per Ha	Soybean	Yellow Maize
Fertilizers	360	380
Agrochemicals	180	150
Seed/ Seedling	95	60
Operations	48	50
Labor	60	90
Storage	30	50
External Transport	89	178

5.4 Investment and revenue generation

From year 1 to year 4, the expected total investment will be around USD 22 million, consisted by USD 15 million of fixed assets investment, USD 7 million of operational cash flow for agricultural inputs in the early stage, as well as people management related expenses. At year 3, when the planting farms reach to the maximum area, the farm operating income will be able to turn into positive. The investment breakdown:

Land preparation	5,000,000 – operating expense
Warehouse & Processing	5,000,000 – fixed asset
Machines & Equipment	9,000,000 – fixed asset
Farmhouses & Furniture	1,000,000 – fixed asset + operating expense
Pre-expenses	500,000 – operating expense
Working Capital	1,500,000 – operating expense
TOTAL	22,000,000

5.5 Modern agricultural facilities

Through the development of the farm, where will become an agricultural city, the Mkulazi area will not only become a modern farm, but also a storage and processing center of the surrounding grain producers. In there, Santagro will construct warehouses, silos for grain and

agricultural inputs storage, as well as grain processing facilities to ensure the high quality of grains, which will be traded at a higher value in the international market.

6. CONCLUSION & PROPOSAL

Grain farming for exportation is, therefore, an income-producing undertaking. In addition, the soybean and yellow maize value chain is driven by the capacity to supply in scale, which is an element currently missing in the Tanzanian market. Therefore, Santagro will leverage its own equity to invest in agricultural inputs, farm operational management service, mechanical equipment, construction of farm infrastructures, and the human capital needed to manage the farm. Our shared drive and capacity to build a sustainable business together with the experienced industry knowledge, and the supports from TIC will give us confidence on meeting the demand to work in line with the investment commitment and business objectives.

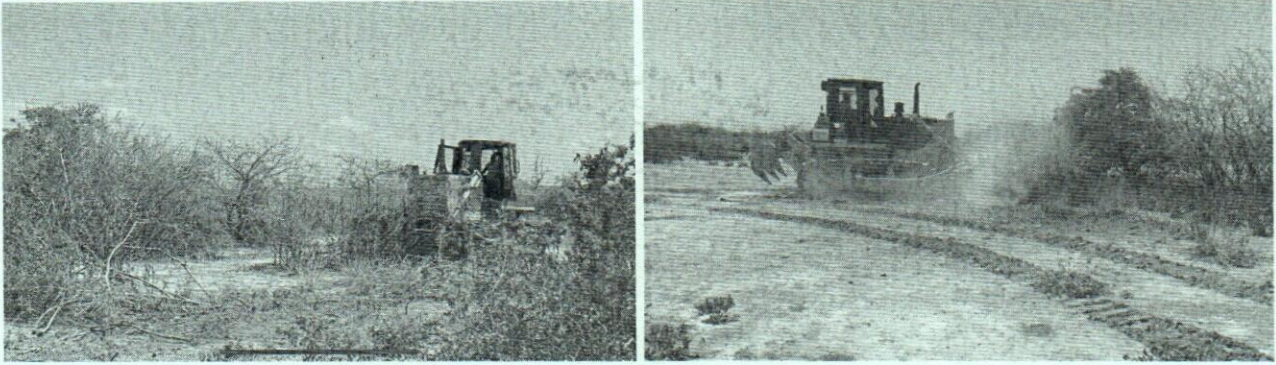
Annex 1: LIST OF MACHINES FOR FARMLAND OPERATIONS

Year of Reference	Machine/Equipment	Commercial Name
2024	Bulldozer 1	Bulldozer 220 Shantui
2024	Bulldozer 2	Bulldozer 220 Shantui
2024	Excavator 1	SY215
2024	Excavator 2	SY215
2024	Wheel Loader 1	856H
2024	Wheel Loader 2	856H
2024	Tractor 220 1	YTO2204
2024	Tractor 220 2	YTO2204
2024	Tractor 220 3	YTO2204
2024	Tractor 140 2	YTO140
2024	Tractor 140 3	YTO140
2024	Tractor 140 4	YTO140
2024	Tractor 140 5	YTO140
2024	Big Chain	Clearing Chain
2024	SelfPropelled 1	3000liters
2024	Chaser Bin 30ton 1	CB30ton
2024	GK120 1	Lovol GK120
2024	GM100 1	Lovol GM100 1
2024	GM100 2	Lovol GM100 2
2024	Stara Planter 18r 1	Stara Princesa 18
2024	Stara Planter 18r 1	Stara Princesa 18
2024	Stara Planter 18r 1	Stara Princesa 18
2024	Lime Spreader	BRUTTUS 12000
2024	Heavy Harrow	GVFF TR\ 12X36X12
2024	Intermediate Harrow	SGIC\ 30-3CH TR28X7.5R
2024	Leveler Harrow	GDFH\ 68X24X4.50
2025	Hercules 4.0	Stara Hercules
2025	GK120 2	Lovol GK120
2025	GK120 3	Lovol GK120
2025	Chaser Bin 30ton 2	CB30ton
2025	Chaser Bin 30ton 3	CB30ton
2026	SelfPropelled 2	3000liters
2026	GK120 5	Lovol GK120
2026	GK120 6	Lovol GK120
2026	GK120 5	Lovol GK120
2026	GK120 7	Lovol GK120
2026	Chaser Bin 30ton 4	CB30ton
2026	Chaser Bin 30ton 5	CB30ton

Annex 2: STEPS OF FARMLAND OPERATIONS

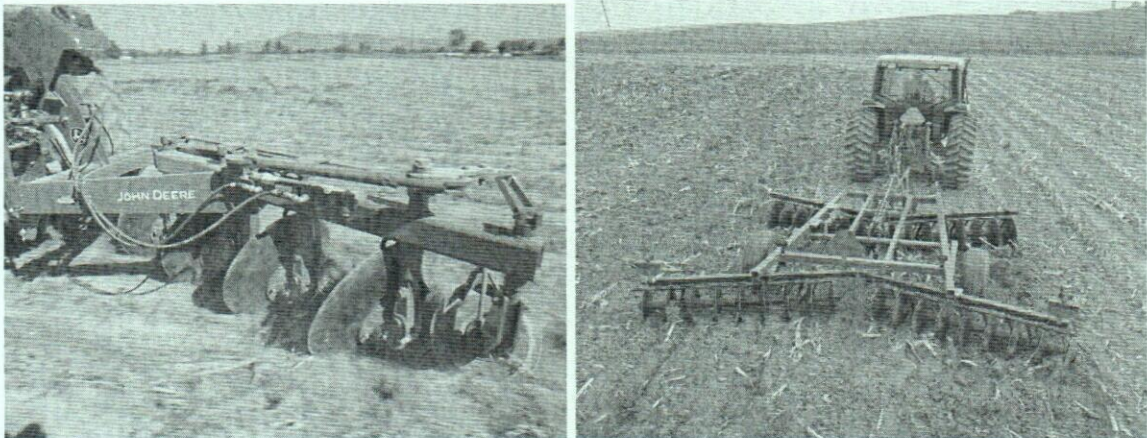
1. STEP 1 - Removing Native Vegetation

The nature of the native vegetation dictates the requirement for heavy-duty machinery in this task. If the land is covered with bushes and small savanna trees, the use of a Bulldozer becomes necessary to efficiently remove and pile the aerial parts of the trees. However, it's important to note that while these methods effectively handle the above-ground portions of the vegetation, the roots will remain in the soil. Given the potential for root remnants to cause damage to the planter, it becomes imperative to implement additional measures for root removal.



2. STEP 2 - Eliminate the Compacted Layers in the Soil

In this phase of the process, our objective is to eliminate the compacted layers within the soil. To ascertain the optimal working depth for each scenario, it is crucial to identify the depth of the compacted layer. This determination takes into account the soil texture, where the penetration of a disc plow varies – in sandy soil, it can penetrate more deeply, while in clay soil, the penetration is less pronounced, typically ranging between 20-40cm. Throughout this stage, a dedicated team will be essential to handle the removal of roots and stems, both during and after the operation, ensuring the effectiveness of the soil preparation process. This meticulous approach contributes to achieving the desired outcomes and enhancing the overall health of the cultivated land.



3. STEP 3 - Breaking the Clocs and Leveling

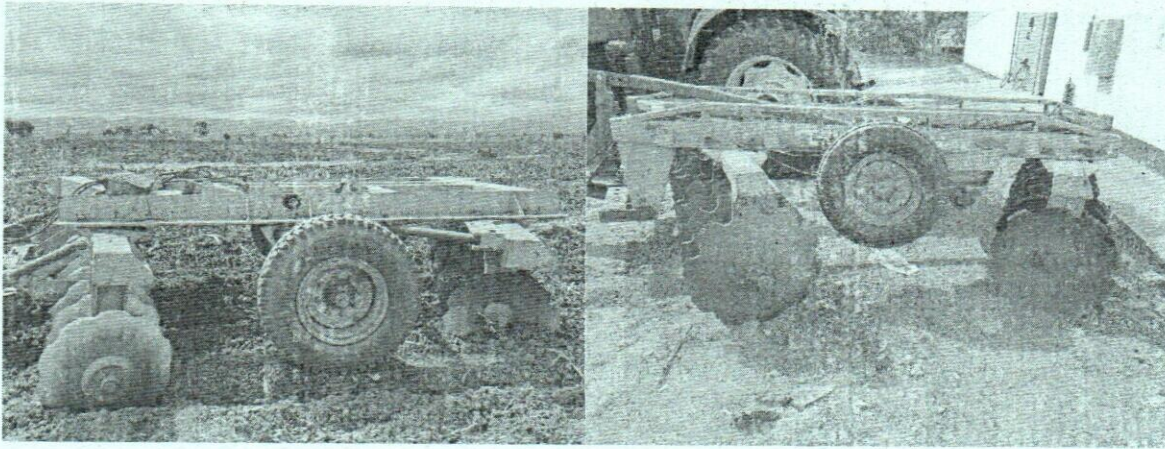
The soil operation marks a pivotal phase in our preparation for the upcoming planting season. During this critical stage, we have the flexibility to employ three types of harrows, each tailored to specific needs:

Heavy Harrow (36"-42"): In certain cases, this harrow may be positioned as a Step 2 in the soil preparation process.

Intermediate Harrow (26"-28"): Offering a balanced approach, suitable for various soil conditions.

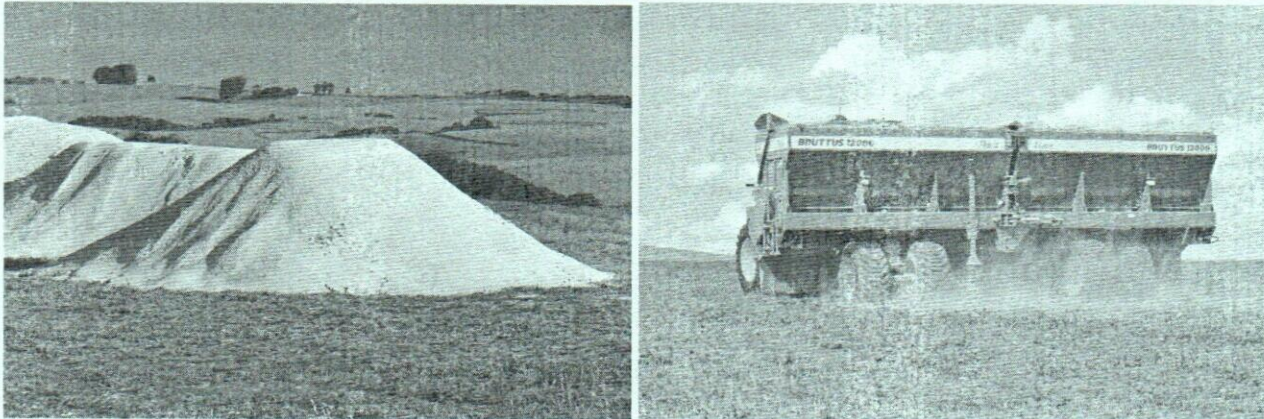
Light Harrow (22"-24", Leveler): Designed for finer leveling, providing a meticulous touch to soil.

The number of operations required during this step—ranging between 2-4—is contingent upon the nature of the soil, compaction levels, and demands specific to each scenario. To accurately gauge these requirements, an on-site technical evaluation becomes imperative. This in-person assessment ensures a tailored and effective approach, aligning with the unique characteristics of the soil, and contributing to the overall success of our field preparation endeavors.



4. STEP 4 – Amendments

In a general context, the anticipated approach involves addressing 50% of the phosphorus demand before planting, achieved through the application of TSP fertilizer. Additionally, limestone, serving as an amendment, is recommended to be applied three months prior to the initial planting. This strategic timing allows for optimal nutrient availability, promoting a fertile and conducive environment for successful crop growth during the upcoming planting season.



5. STEP 5 - First Planting

After undergoing this comprehensive and meticulous soil preparation process, our field stands fully primed for the inaugural planting in the first year. The primary focus during this initial year is the cultivation of soybean or maize, with the subsequent establishment of direct planting methods in the following years.



6. STEP 6- Weed Control

Implementing effective weed control measures will be essential to mitigate potential competition for resources and support the successful cultivation of the soybean plants. This proactive approach to weed

management is crucial in maintaining a conducive environment for the soybeans to thrive during their growth cycle.

7. STEP 7 – Harvest and Straw Material Broadcasting

In the first harvest, one of our focuses is to keep the straw material on top of the soil, this is one of the accomplishments of a land prepared to follow in the Direct Planting System, helping to increase the soil organic matter and covering the top of the soil, helping to avoid weeds growing.

