Business Model

Production and Supply of Forage Seed & Vegetative Planting Material Buta Ganiti Youth Cooperative, Ethiopia

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December 2021

RESEARCH PROGRAM ON Livestock
CGIAR

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Executive Plan

The shortage of feed due to the lack of improved forage seed and vegetative material is one of the core problems in livestock farming in Ethiopia. The cooperative aspiring to supply fodder and planting material is a registered company owned and run by committed, passionate, and enthusiastic young men and women. The International Center for Agricultural Research in Dry Areas (ICARDA), in close cooperation with regional agricultural research institutes and partners, implements improved sheep fattening methods and technologies with an entrepreneurial lens in Ethiopia. The project aims to improve the income of rural farmers from sheep fattening. Sheep farming is one of the lucrative commercial businesses in Ethiopia. The youth have been encouraged to undertake collective action to fatten rams for sale as well as participate in related entrepreneurial opportunities along the sheep value chain. Forage production is one of the identified potential ventures. The main products of forage production are improved seeds and forage biomass. Within the Southern Nations, Nationalities, and Peoples' Region (SNNPR), improved high-performance varieties can be sourced from Bonga Agricultural Research Center, Kafa zone. The cooperative will produce forage seed on their communal production land and supply the products through direct marketing on the local market and farms.

Financial success can be achieved by supplying high-quality seeds and vegetative planting materials while minimizing production costs. Financial projections are based on experience and knowledge of the region. With an initial capital of ETB 17,000 (USD 360) for every 0.25 ha, the cooperative can generate ETB 47,000 (USD 1000) profit by the end of the second year.

Mission, Objectives, and Keys to Success

Mission

The mission is to offer customers high-quality forage seeds, vegetative planting material, and feed biomass at affordable prices. The commitment to customers and the community is reflected in honest and responsible action.

Vision

- Creating local business opportunities, growth, and community impact by empowering youth in improved forage seed and planting material production.
- To supply pure and quality planting materials.

Core values

- Knowledge sharing
- Corporate social responsibility
- Teamwork
- Passion

Objectives

- Produce the forage seed on 25 ha.
- Achieving annual sell plan to be profitable
- Job creation with the expansion of the cooperative.
- Produce sheep with high-quality meat.

Keys to success

- Identification of well-adapted and high-performance forage types through close collaboration with agricultural research centers.
- Choosing the most appropriate forage production niches.
- Clearing and seedbed preparation.
- Plant management including fertilization and weed control.
- Manual harvesting of seed.
- Reduction of losses during post-harvest handling of seed (threshing, seed drying, cleaning, packaging and storage).
- Entrepreneurship and business skill development

Summary of the Enterprise

The fodder seed and plant material production facility is owned and managed by Buta Ganiti, a sheep fattening and forage production youth cooperative. The most important products will be high-quality and high-yielding forage seed and vegetative material. Improved germplasm for forage seed will be obtained from Bonga Agricultural Research Center. In addition to forage seed and vegetative material, the cooperative will provide biomass for urban and peri-urban livestock producers who suffer from a shortage of fodder due to land scarcity.

Products

The main products of the cooperative will be improved forage seed and vegetative planting materials. Feed biomass will be supplied to urban and peri-urban livestock producers especially, urban dairy farms.

Ownership

Which forage seed production business to choose will depend on the size of your business, along with your circumstances and how much you plan to grow the business

Cooperative

A cooperative is an autonomous association of people who come together voluntarily and who are contractually obliged to conduct a profitable business together. Each partner is responsible for the management of the company, shares an equal share in the profit or loss, unless the articles of association provide otherwise, and is liable for all debts of the company. This partnership is relatively inexpensive to set up and operate. It is advisable to establish the partnership with a formal written partnership agreement.

The advantage of a cooperative is that it is easier to get the start-up capital because all partners contribute to the start-up capital. If 2 or more of the partners are actively involved in the business, there is a benefit of skill diversification. The combined skills, experience and knowledge can provide better service in the business.

Forage Production

There are several feed production strategies that cooperative members can use to conduct feed production in response to the scarcity of land in the highlands of Ethiopia. Promising strategies, which have shown initial successes in improved feed development in the country are briefly discussed below"

Forage production in marginal areas

These marginal areas are mostly located on the extremes of topographical steep slopes as well as on water-logged areas that are not suitable for normal crop production.

Integration of forages with food and cash crops

Forage legumes and grasses can be integrated into cropping systems through several methods such as an intercropping, relay or sequential crops, forage banks, and alley farming. These technologies have a better chance of being accepted to smallholders than the more expensive conventional pastures.

Forage seed

Seedbed preparation

Clearing land, plowing, and rolling

Propagation by seed

*Varietal selection***:** Check that the seeds are the correct variety recommended for the target area.

*Seed quality***:** Quality is measured by purity and germination. Purity is expressed as the percentage of seeds of the variety sown, other crops and weeds, inert material (including pieces of straw, soil, etc.) and broken seeds.

Seed dormancy is a natural protective phenomenon that prevents premature germination of seeds to ensure the long-term survival of the species.

Seed Rate: The seed rate depends primarily on the viability and purity of the seed. Furthermore, seed rate depends on seed size, pure stand or mixture, amount of rainfall and soil fertility. As a general guideline, for row planting, sow grasses at 6–8 kg/ha, legumes at 3–4 kg/ha, and fodder shrubs at 10–15 kg/ha. When broadcasting seed, sow at double the rate recommended for row planting.

Sowing practice

Timing: The most desirable time to sow non-irrigated areas is just before the season of the most reliable rainfall and when the temperature is favorable. Sow perennial species at the beginning of the longest rainy season, when the soil has received enough moisture to aid germination and establishment.

*Spacing***:** In general, the distance between rows should not exceed 25-45 cm and the distance between plants within the row should be 5-15 cm.

Depth: Generally, the smaller the seed the shallower the depth of planting. Usually, grasses are sown at the depth of 1–1.5 cm, while medium-sized legume seeds are sown at a 2.5 cm depth.

Propagation by vegetative parts

Vegetative reproduction is necessary for the establishment of sterile plants, erratic-seeders and for plants that provide seeds with low genetic stability (hybrid varieties; segregation populations). A well-grown stand of mature stems, bearing three nodes, is cut and planted in furrows or surface broadcast and covered with soil. Two nodes are buried and one remains above the ground. The spacing for most types of grass is 0.7 to 0.3 m within and between the rows.

Weed, pest and disease control

Weeds affect seed yield and quality. Efficient weed control reduces weed seed contamination during harvest. Thorough and repeated cultivation, hand weeding, use of herbicides and crop rotation provide an adequate level of weed destruction. Pests such as mole rats, porcupines, wild herbivores and insect pests can pose a threat to pasture crops. Insect larvae of the Sesbania beetle (*Mesoplatis orchoptera*), for example, can devastate populations overnight. Control measures against such serious insect pests can become expensive as the infestation progresses, and immediate spot spraying with the recommended chemicals is required as soon as possible. Diseases, especially fungi, are more serious in grasses than in legumes.

Fertility management

Fertilizers should be applied according to the fertility status of the soil. To determine nutritional requirements: In general, pulses have high requirements for phosphorus (P), sulfur (S) and molybdenum (Mo); Grasses have a high need for nitrogen (N), P and potassium (K). The amount of nutrients used depends on the type of soil, the species used, the level of production required, and the production system (cut-and-carry systems require more maintenance than pasture systems). Typical nutrient contents for annual maintenance (Cook et al, 2005) are 50-300 kg / ha N; 10-20 kg / ha P; 25-50 kg / ha K; 30 kg / ha S; and 100-200 kg / ha mo. Nitrogen is often applied with every grazing or every cut. Phosphorus should also be used, especially if the legume component is losing strength due to the dominance of grass. Manipulating the ratio of nitrogen and phosphorus application is a useful management technique to maintain a desirable balance between the grass and legume components.

Harvesting

Efficient timing and harvesting techniques lead to a high quality and quantity of seed production. Techniques for determining the optimal time to harvest vary by species. One must closely monitor the color change, ease of removal from the rachis (or pod in legumes), and the hardness of the seeds. At the smallholder level, the simple and practical techniques available are hand-picking the inflorescence or pod, shaking the sheaves, and collecting the seeds that fall on a canvas laid under the harvest.

Cleaning and drying

The drying process must take place under a shed to protect the seeds from direct sunlight. Grass seeds are more sensitive to drying processes than legume seeds and should be dried slowly under a shed to maintain high viability. Legumes and inflorescences should be turned regularly once a day to ensure even drying

Storage

Cleaned and correctly dried seed must be stored in a cool, dry place. Seeds may be stored in cloth bags which provide good aeration. For both grass and legume seeds storage in plastic bags

should be avoided. Seed storehouses should have high roofs for efficient ventilation and to keep the temperature as low as possible. Vent holes around the wall above the ceiling will provide movement of hot air out of the space in between the ceiling and iron roof. The seed storeroom should be clean and free from insects and rodents. Generally, the seed must be kept at a room temperature not exceeding 15^{o}C with relative humidity below 45% for short-term (2–3 years) storage.

Operational Strategy

The cooperative of youth groups will produce the improved forage production *desho* and elephant grass which is a high-performance type of forage in the region. The forage types oats, lablab, and vetch are propagated by seeds. The above six types of forage are produced on cooperative communal land and their arable land.

Marketing Strategy

The cooperative will endeavor to quickly raise awareness of the availability of forage seeds and vegetative material in the community in the first year. To be successful in the forage seed and planting material supply business, a large number of customers are needed; farmers, cooperative members, and private companies. The marketing strategy will be based on the marketing mix, which consists of the 4 Ps of marketing, namely product (service), price, advertisement, and place (sales).

Product

The high-yielding types of forage, seeds and vegetative planting material, are the main product. Farmers in the community will be pleasantly surprised at how they can meet their needs by having forage seeds in the community at an affordable price. This reflects the perception that when farmers are satisfied; long-term profits are assured.

Price

The effort is required to minimize production costs so that competitive prices can be offered to the market. The price of the seed and plant material is based on the production costs and forage species.

Promotion

Maintaining and improving reputation with families and the community will be critical to achieving the planned growth in market share in the target market. Cooperative members need to be active in the community, at farmers' meetings, local markets, and sponsoring community center events for families and residents.

Market

A key place for sale and distribution is in local markets of the community especially in the period before planting.

Market Analysis

Demand

Ethiopia's main problem is the shortage of feed in terms of quality and quantity. The lack of an improved source of forage seed at an affordable price in a local market is the void. The government is encouraging farmers to use the zero-pasture cut-and-carry system.

Market segmentation

Community-Based Breeding Program (CBBP) members

The community-based sheep breeding program has more than 2000 members who are committed to using a full production package, mostly improved feed, to meet nutritional needs to achieve the full potential of breeding rams. The internal statutes of the cooperative stipulate that all members must plant only improved crop varieties in their backyard.

Sheep Fattening Youth groups

Youth and women's groups who engage in market-oriented sheep fattening. The groups target festivals and holidays, so they fatten the rams three times a year during wet and dry seasons. For their business success, the groups and cooperatives demand improved feed.

Farmers in the community

Farmers who are not members of the CBBP get involved in dairy milk production and draft bulls.

Private sectors

Private farms of dairy, fattening, sheep, and goat production

Development organizations

There are NGOs and government development organizations that buy and distribute forage plant material.

Industry Analysis

Medium-scale producers

This includes large-scale commercial seed production, which is well organized and financed. Commercial operations are geared towards maximizing profit and specific production goals. In Ethiopia, however, there are no more than two such producers countrywide.

Small scale production

Due to the increasing demand for animal products, private or smallholder production for commercial purposes is now emerging

SWOT Analysis

Strength

- Since there is no other seed supplier, the uniqueness of the products will prompt all farmers/producers to buy from the youth cooperative.
- The point of sale is in a local market and forage farm which is suitable for farmers.
- Strong commitment and leadership of the cooperative.
- Delivery of high-quality seeds and planting material with the exchange of information and experience on feed production packages.

Weakness

- Lack of capital: The entire startup budget and land come from young people.
- Small land size.
- Shortage of adequate knowledge on forage varieties and seed storage.

Opportunities

- In Ethiopia, the sheep production areas are well known. Most of the farmers are potential customers
- Shrinkage of grazing land.
- High demand for forage seed.
- The high profitable margin of the fattening business
- The government is very interested in the economic development of the youth and fodder production

Threats

- Potential computation in technology and capital when competitors emerge.

PEST Analysis

This business may be influenced by political, economic, social, and technological factors. Below are external factors that can affect the business and the assumptions made in creating this business plan.

Political

Changes in regulations affecting the agricultural sector, especially seed production, would affect the business. New legal provisions could lead to violations of the law or new administrative burdens. Government tax policies would affect the company's business. If the government increases taxes on companies, it would hurt the company's profitability. Changes in labor laws and safety regulations, particularly those relating to agriculture, would affect the way our company does business. We expect political stability in the country to continue and do not expect the government to make any significant changes to regulations.

Economic

Interest rates would affect the cost of capital; the interest rate is directly related to the cost of capital. The rate of inflation determines employee remuneration and has a direct impact on the price of the products. Economic trends serve as an indicator of the sustainability and profitability of the company in our city and help to decide on the marketing strategy. Economic growth in Ethiopia's economy would mean more business for the industry as the economy becomes more active and more people receive higher disposable income.

Social

It is assumed that the population growth in Ethiopia will continue. That means more potential customers and greater demand. It is expected that the current government and non-governmental health campaigns raise people's health awareness and lead to a reduction in the number of illnesses, resulting in a healthier workforce.

Technological

Technological improvements can lead to the production of more efficient feed. A good technical infrastructure would lead to better production, procurement, and distribution logistics, resulting in reduced wastage and lower costs.

Financial Statements

Start-up costs

The quantity of forage seeds, cuttings, and splitting was calculated for 0.25 ha of land. The seed rate of oats and lablab is 50 kg/ha and 20kg/ha respectively. The elephant grass cuttings and desho planting splits are planted at 400 cuttings/ha and 400 splits/ha respectively. Planting will take place once annually during mid-June to end July. The rest of the months to the next planting season is maintenance of the cropping land.

The annual cost for land rent is relatively low at 8400 ETB. This is because the land is characterized as marginal by the government.

Cooperative members will each receive a nominal wage of 100 ETB for the entire season.

Start-up costs

Start-up costs are shown I the table below.

Item	Quantity	Cost per unit (ETB)	Total (ETB)
Oat's seed (kg)	12.5	120	1500
Lablab seed (kg)	5	150	750
Elephant grass cuttings (plants)	100	1.5	150
Desho planting splits	100	1.5	150
Land rent (ha/year)	1 ha for 1 year	8400	8400
Land preparation (ha)	1	750	750
Wage for cooperative members	25	100	2,500
Fertilizer NPSB (kg)	1 ha	1,340	1,340
Fencing	1 ha	1500	1,500
Grand Total			**`17,040**

1USD=47.87 ETB (December 2021)

Seed Yield Estimation

The seed yield estimation based on productivity per ha, oats, and lablab give 1.2 and 1 t/ha respectively. Accordingly, the yield from 0.25ha of oat and lablab will be 300 kg and 250 kg respectively. To create demand and encourage farmers to purchase seeds, the cost of seed will be minimized to 100 ETB/kg for both crops as opposed to the market rate of between 120-150/kg. The vegetative material yield from 0.25 ha land will be 500 splits of desho and 500 cuttings of elephant grass.

The projection revenue for the first year is 56,500 ETB with a net profit of 37,540 ETB. The yield and income are expected to increase by 5% annually. Income from the sale of seed and planting materials is shown below.

Forage	Area	Yield	Unit price (ETB)	Total (ETB)
Oats	0.25	300 kg	100	30,000
Lablab	0.25	250 kg	100	25,000
Desho	0.25	500 splits	1.5	750
Elephant grass	0.25	500 cuttings	1.5	750
Total	1			**56,500**

Training

The youth group cooperatives will give on-farm training to farmers and youths, including those who are not members of the cooperative. This will include training on seed selection of planting material and agronomic practices. The training fee will be nominal at 100 ETB per trainee. In the first year they expected to give training to 100 persons.

Income statement (ETB)

The revenue from forage and training of the first year is 56,500 birr and 10,000 birr respectively. The annual increments of 5% per year for revenue from forage and training as well as 5% annual increments in expenses will generate a net profit of 54,000 ETB per 0.25 ha cultivated.

	Year 1	Year 2	Year 3	Year 4	Year 5
Revenue (forage seed/ha)	56,500	58,825	61,766	64,855	68,097
Revenue (on farm training)	10,000	10,500	11,025	11,576	12,155
Total revenue	**66,500**	**69,325**	**72,791**	**76,431**	**80,252**
Cost of goods sold	2,000	2,100	2,205	2,315	2,431
Gross profit	**64,500**	**67,225**	**70,586**	**74,116**	**77,821**
Start-up cost	**17,040**	**17,892**	**18,786**	**19,726**	**20,712**
Operating expenses					
Marketing & promotion	840	984	1,116	1,200	1,332
Utilities	600	708	804	864	960
Repairs and maintenance of farming materials	480	564	648	696	768
Total operating expenses	**1,920**	**2,256**	**2,568**	**2,760**	**3,060**
Net profit	**45,540**	**47,077**	**49,232**	**51,630**	**54,049**

1USD=47.87 ETB (December 2021)

Risk Analysis

The following risks could have an impact on the forage seed supply business, financial position or results of operations. Additional risks and uncertainties that are currently unknown or that are currently considered to be immaterial could also have a material adverse effect on the business, financial or earnings position.

Climate Change and erratic rainfall

Global warming is the main risk in crop production related with erratic rainfall and crop calendar. Global warming is the main risk in crop production related to irregular rainfall and the harvest calendar.

Fluctuations in the price of seed

The production and pricing of these products are determined by constantly changing market forces of supply and demand over which there is limited or no control. Fluctuations in production costs have a direct impact on gross margin and profitability. Additionally, if prices

increase to offset higher costs, lower demand for the products would ensue and sales volumes plummet.

New or stricter government regulations could impose material costs and affect the business

Changes in laws or regulations that impose additional regulatory requirements on the business could increase the cost of doing business or restrict activities, thereby, adversely affecting operations.

Potential Sources of Finance

Equity Financing

Personal Savings: Not everyone has savings, but when one does, they are at a good place to start. The timeframe for starting a business can range from six months to a year. Starting a business means sacrifice and one has to limit costly lifestyles as much as possible and save money. It is important to have a savings plan. Save a certain percentage e.g. 20% of your salary or income as start-up capital for your company. Open a savings account with a reputable bank. Be disciplined.

Debt Financing

Borrowing involves borrowing from creditors with the requirement to repay the borrowed capital plus interest at a certain future date. For the creditors (who lend funds to the company), the interest on the loan amount to the borrower is the reward for providing the debt financing. Debt financing may be secured or unsecured. Secured debt has collateral (a valuable asset that the lender can attach to satisfy the loan in case of default by the borrower). Conversely, unsecured debt does not have collateral and places the lender in a less secure position relative to repayment in case of default.

Debt financing (loans) may be short-term or long-term in their repayment schedules. Generally, short-term debt is used to finance current activities such as operations while long-term debt is used to finance assets such as buildings and equipment.

Microfinance Banks and other commercial lenders

Banks and other commercial lenders are popular sources of business financing. Most lenders require a solid business plan, a positive track record, and plenty of collateral. These are usually hard to come by for a start-up business. Once the business is underway and profit and loss statements, cash flows budgets, and net worth statements are provided, the company may be able to borrow additional funds. Borrowing money from micro-financial institutions to start a business is not advisable as their interest rates are high and unsustainable.

Tips on applying for a loan

1. Look objectively into the future of the company. What is the funding needed for? Is short-term or long-term financing required? How will the money need to repay the loan be raised?
2. A loan should be sought for with confidence. A business proposition is sold and the lender should make a profit if they loan you the money. The lender must be convinced that he is not taking a great deal of risk. Risk management plans should be provided.
3. Check that the bank is ready to lend money for the securities on offer. A proper application including a business plan should be drawn up
4. The following information must be collected for an application:

- How much money is needed?
- What type of loan is desired?
- When will the money be needed?
- What will the money be used for?
- How will the loan be repaid? Copies of any negotiated contracts should be presented. Include estimated income and all expenses. How long should be loan period be?
- What collateral is required in return for the loan? Independent and realistic assessments of the assets on offer should be sought.
- Personal information should include age, education, experience, and personal worth, and a statement about personal financial needs. Funds required to cover living expenses at the start of your business should be considered.
- Information about the company should be included in the business plan. A brief history of the company, plans, and accounts for the current and past year if it is an existing company, and a cash flow forecast for both existing and new companies.
- Include information about existing funds and individual shares. List assets and liabilities, bank balances and other deposits or investments.
- What is the previous credit history? What other existing obligations are there? List all loans, hire purchase and leasing contracts.

Business Model Canvas