

Business Model for Sheep Fattening in Ethiopia

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Executive Summary:

- Sheep fattening is a popular business venture among small-scale farmers in rural Ethiopia.
- Sheep fattening business provides increased income for farmers, supplies consumers with high-quality meat, and contributes to the food supply chain.
- This type of business requires detailed planning of the production and marketing components of the business.
- This document presents a comprehensive business model for sheep fattening with rural entrepreneurs in mind. The model also presents the marketing strategy and the financial analysis of the model.
- The business model is developed by considering three locations in different parts of the country, namely, Bonga, Doyo Gena, and Menz. The document can however be used by any individual or group that is interested in sheep fattening.
- In Bonga, Doyo Gena, and Menz, sheep are an integral part of livestock keeping and are kept primarily to generate immediate cash, meat consumption, manure, and skin, and as a store of value.
- The ideal customers for a sheep-fattening business are those who value high-quality and locally sourced meat products. The customers could be one or more local restaurants, individual customers, and industrial customers such as abattoirs, restaurants, hotels, hospitals, universities, military camps, and supermarkets.
- The main competitors to this sheep fattening business are other existing and new suppliers of fattened sheep including local farms, private farms, cooperatives, and butcheries.
- A combination of traditional and modern marketing strategies should be used to effectively market the products of the fattening business.
- Such businesses need to focus their marketing strategies on meat quality and documentation that can help trace the animals or the meat that they produce.

- Carefully crafted partnerships will help business owners to reduce costs and increase the efficiency of production and marketing.
- To evaluate the financial viability of the sheep-fattening business, a thorough financial analysis has been done.
- Sheep fattening is a profitable business in all three locations. Interestingly, the NPV and IRR values are very comparable across the locations.

Introduction

Sheep fattening is a practice that involves feeding and managing sheep for a specific time to increase their weight and improve their quality of meat production. In Ethiopia, particularly in rural areas, sheep fattening is a popular business venture among small-scale farmers. It provides an opportunity for farmers to generate income and improve their livelihoods. The practice is also important for meeting the increasing demand for meat in the country, which is expected to grow in the coming years due to population growth and urbanization.

Sheep fattening business provides increased income for farmers, supplies consumers with high-quality meat, and contributes to the food supply chain. It also helps to meet the market demand for meat products and offers a livelihood for the different actors in the value chain. As a business, sheep fattening produces healthy and well-nourished animals that will fetch a higher price and generate more profit for the fattener. This type of business requires detailed planning of the production and marketing components of the business. This document presents a comprehensive business model for sheep fattening with rural entrepreneurs in mind. The model also presents the marketing strategy and the financial analysis of the model. The business model is developed by considering three locations in different parts of the country, namely, Bonga, Doyo Gena, and Menz. The document can however be used by any individual or group that is interested in sheep fattening.

To have a profitable business, the entrepreneur needs to consider various factors such as the breed of the animals, the quality of feed and water, proper housing and sanitation, veterinary care, and market demand. It is important to select the right sheep breeds that are suitable for fattening and have good market value. The quality of feed and water provided to the animals is crucial for their growth and health. Proper housing and sanitation are necessary to prevent diseases and ensure the animals are comfortable. Regular veterinary care is also essential to prevent and cure any veterinary issues that may arise. Finally, the entrepreneurs need to have a good understanding of the market demand for

meat products and develop a marketing strategy to sell their products. With proper management, feeding, and care, the sheep-fattening business can be a profitable and sustainable venture for rural entrepreneurs.

Products and Services

Sheep fattening has three key products, namely, meat, skin, and manure. All three products are highly marketable in rural Ethiopia. The extent of control on these products by the entrepreneurs is, however, different. For instance, meat can be directly marketed if the business engages in slaughtering. In this case, the skin of the sheep will also be marketed by the business. If the business is selling live animals only, the skin marketing will not be within the auspices of the business. The manure will always be the product to be sold by the business owner.

Sheep fattening produces sheep with increased nutrition to gain the required body weight in a shorter period (90 days). Suitable types of sheep will be identified and brought to the location of the business for fattening. The animals will be examined and treated. The treatment includes weighing, vaccinating, castration, and provision of medical supplements. Physical examination to isolate sick animals is done before pulling all the sheep together for synchronized husbandry. Once the sheep achieve the expected weight, they will be supplied to the market. The main consumers of fattened sheep include hotels, restaurants, local communities, wholesalers, retailers, and abattoirs.

Target Markets and Marketing

Market Description:

Sheep fattening business needs to focus on the domestic market and preferably the local market due to the high market access costs. The business typically involves purchasing young or small sheep (12-month-old) from farmers and then feeding them in a controlled environment to fatten them up before selling them in the market. This process can be done either on a small scale or on a commercial scale.

The main locations considered in this business model are Bonga, Doyo Gena, and Menz woredas [or districts] in Ethiopia. Sheep fattening in these areas is a thriving business that has gained significant public attention in recent years. Located in the heart of Ethiopia, these locations boast a rich agricultural landscape and favorable climatic conditions, making them ideal for livestock keeping.

Sheep fatteners must understand the diverse range of customers who may be interested in their key products. The ideal customers for a sheep-fattening business are those who value high-quality and locally sourced meat products. The customers could be one or more local restaurants, individual customers, and industrial customers such as abattoirs, restaurants, hotels, hospitals, universities, military camps, and supermarkets.

- **Individual customers**

Individual consumers usually buy sheep for the holidays. The high demand in the holiday season has a positive knock-on effect on the market prices for livestock and livestock products. Therefore, to maximize their profits, entrepreneurs need to strategically time their sales to coincide with these high demand periods.

- **Hotels and restaurants**

Most hotels and restaurants buy sheep from producers, brokers, and small-scale traders in the market, while others may have regular small-scale suppliers that provide 10-15 animals a week. Hotels and restaurants usually buy adult ewes since they believe that ewes have higher meat yield while commanding a relatively low price. Hotels and restaurants also buy sheep meat from supermarkets in bigger towns and cities. Through targeted promotion and careful pricing, sheep fatteners can convince some hotels and restaurants to purchase their products. As profit-making enterprises, themselves, a unique approach would be required for hotels/restaurants.

- **Butcheries and supermarkets**

Butchers focus mainly on fattened, castrated sheep of 40 to 45 kg of live weight. They buy animals from large- and small-scale traders. Supermarkets buy animals of different live weights depending on the needs of their customers. Butcheries do not usually slaughter the sheep themselves, instead the slaughtering happens in municipal slaughterhouses. Supermarkets on the other hand slaughter sheep on their premises. In addition to selling packed meat to individuals through their retail outlets, supermarkets supply carcasses to restaurants and hotels on a contractual basis. Butcheries and supermarkets usually have written and unwritten agreements with their suppliers. Fatteners can therefore build on this culture of integration and approach butcheries and supermarkets with appealing value propositions.

- **Export abattoirs**

Export abattoirs can also be considered as potential customers of fattened sheep. These abattoirs usually purchase animals from large and small-scale traders. In some cases, groups of farmers do also bring their animals - a minimum of 100 animals at a time - to the abattoirs. The abattoirs slaughter on average 2000 sheep per day. The preferred type of animal for abattoirs is male (uncastrated) yearlings with a live weight of 22 to 30 kg. They do not slaughter female animals (Kassa, Haile and Essa, 2011). With this specific requirement, the export abattoirs will not immediately be important to the fatteners. However, if the fattener decides to diversify his/her products and supply young well-fed male sheep, the abattoirs could be a reliable market outlet.

Table 1. Number of institutional consumers of sheep in the three districts

Woreda	Hotels /restaurants	Butcheries	Supermarket	Abattoirs	University	Hospitals
Bonga	>500	>30	0	2	1	7
Doyo Gena	>50	>200	2	2	1	2
Menz	15	0 ???	0	1	1	2

Data source: Areka, Bonga and Debre Birhan agricultural research centers

Market size

According to the Central Statistical Agency, Bonga, Doyo Gena and Menz woredas have a population of 107,731, 102,526, and 223,970 people with an annual growth rate of 2%, 2.4%, and 1.7%, respectively (CSA, 2021). The fast-growing population will certainly increase the demand for sheep meat. It is also expected that the economic wellbeing of the people will improve, and people desire increasingly diverse food products, such as sheep meat.

In Bonga, Doyo Gena, and Menz, sheep are an integral part of livestock keeping and are kept primarily to generate immediate cash, meat consumption, manure, and skin, and as a store of value. In Bonga majority of the population (73%) are Orthodox Christians, 11% are Muslims, and 10% are Protestants. Doyo Gena district is in the Kembata Tembaro Zone in the Southern Region. 82% Doyo Gena's population is Protestant, 12% are Catholic, 6% are Orthodox Christians, and 0.4% are Muslims. Menz is located 283 km northeast of Addis Ababa. In Menz majority of the population (99%) follows Orthodox Christianity, therefore demand and prices rise during religious festivals such as New Year and Meskel in September, Genna /Ethiopian Christmas and Timket/Epiphany in January, Fasika /Ethiopian Easter in April, and Ginbot Lideta in May. Other non-religious festivals including weddings, births, funerals, and more are also events with high demand for sheep. The demand for

sheep, and livestock in general, considerably declines during the Orthodox Christian's fasting period and the rainy season.

There is a very large market for fattened sheep in these areas and in areas that get supplies of sheep from these locations. Research reports shows that the proportion of live sheep sold at farm gate, primary markets, and secondary markets is 10%, 20%, and 70%, respectively (Gizaw et al., 2010; Tadesse, Negesse and Abebe, 2015; Abate and Addis, 2021). Entrepreneurs to start sheep fattening business need to target all markets. The key considerations that need to be made are the transportation and other access costs, including the repetitive taxation that occurs in livestock markets. The entrepreneur needs to investigate how the markets are functioning and target market shares from the village level to tertiary markets. It is important to keep in mind that market penetration takes time and effort, and it may be more realistic to have a plan to gradually increase the market share of the business over time.

Description of Competitors

The main competitors to this sheep fattening business are other existing and new suppliers of fattened sheep including local farms, private farms, cooperatives, and butcheries. We analyze each of the competitors in the industry by using Porter's Five Forces Model for a sheep-fattening business in Ethiopia.

1. Threat of New Entrants

The threat of new entrants in sheep fattening is quite high notwithstanding the forbidding transaction cost due to different distortionary forces. Sheep fattening is still done under traditional practices targeting only local markets. According to the information gathered from the sites, the local fatteners usually keep only 5 to 25 sheep. A new entrant can start or scale up his/her fattening business without so much financial burden and most of the labor can be garnered from the family itself.

2. Rivalry among Existing Firms

The rivalry between existing firms in the sheep-fattening industry is low. Most fatteners in this industry operate independently and have small-scale operations. There is limited collaboration among these fatteners and, hence, limited rivalry and price wars. They are too small to affect the supply and hence the price in the market on their own.

3. Threat of Substitute Products

The threat of substitute products in sheep fattening business appears to be relatively low. While there may be some competition from other types of meat products, such as beef and chicken, sheep meat remains an important component of the Ethiopian diet. The value added in terms of health control and documented management of the fattened animals makes it more difficult for other competitors to come up with substitutes that can threaten the share of fattened sheep meat.

4. Bargaining Power of Buyers

The bargaining power of buyers appears to be relatively high in primary and secondary markets. Research has shown that fatteners might have limited options for buyers, particularly in rural primary markets, which can reduce their bargaining power and lead to unfavorable prices for their animals. Entrepreneurs need to expand their marketing through partnerships and/or promotions.

5. Bargaining Power of Input Suppliers

Input suppliers are likely to have relatively higher bargaining power compared to sheep fatteners. This is to be the case with feed and veterinary supplies. This relative market power varies spatially and temporally depending on factors such as access to credit, information, and the structure of the market. Concerning the fattening stock, there is a wide availability of suppliers in the market, and hence buying a 12-month-old sheep will not be difficult. However, the feed and the veterinary supplies will be done by the limited number of businesses skewing the bargaining power towards them.

Marketing Strategy

To run a business profitably, it is important to study and plan around the four 'P's of marketing, namely, product, promotion, price, and place. The product should be of high quality and meet the needs of the target consumers. Promotion should focus on educating target and potential consumers about the unique attributes of the products of the business and the value proposition thereof. The price should be competitive and reflect the production cost while also providing a reasonable profit margin for the business. Place refers to the location where the business is going to be established vis-a-vis where the potential consumers and collaborators are located. Below is a brief contextualized discussion of these concepts.

1. Products

This sheep-fattening business focuses on providing high-quality meat products to customers by selecting the best breeds of sheep, providing proper nutrition and veterinary care, and ensuring that they are raised in a clean and healthy environment.

2. Price

The factors to be considered in setting the selling price are the cost of production, market demand, competition, and the propensity of consumers to pay for such product. It may be beneficial to conduct market research to understand the pricing strategies of competitors and adjust accordingly. The demand for fattened sheep varies depending on the season and the location in all three areas. It is high during times of religious and cultural holidays. Due to the increased demand for sheep, prices are relatively higher in January, February, April, May, July, September, and December.

3. Promotion

The sheep-fattening business should prioritize developing a unique brand and publicizing its products through a range of methods. To attract new customers and keep the current ones, entrepreneurs need to consider implementing discounts and other methods of unconventional methods of promotion. A combination of traditional and modern marketing

strategies should be used to effectively market the products of the fattening business. This may include segmenting the target consumers, developing a unique selling proposition, and selecting the most effective promotional channels such as cell phone technology using the Short Message System (SMS), Radio broadcasts, Newspapers or print advertising, and social media. It is also important to track and measure the effectiveness of each promotional effort to make informed decisions about future marketing investments.

4. Place and distribution

Ensuring that products are delivered efficiently and effectively to customers is key to maintaining customer satisfaction and loyalty. The generic marketing channel for sheep and sheep meat is shown below (Figure 1).

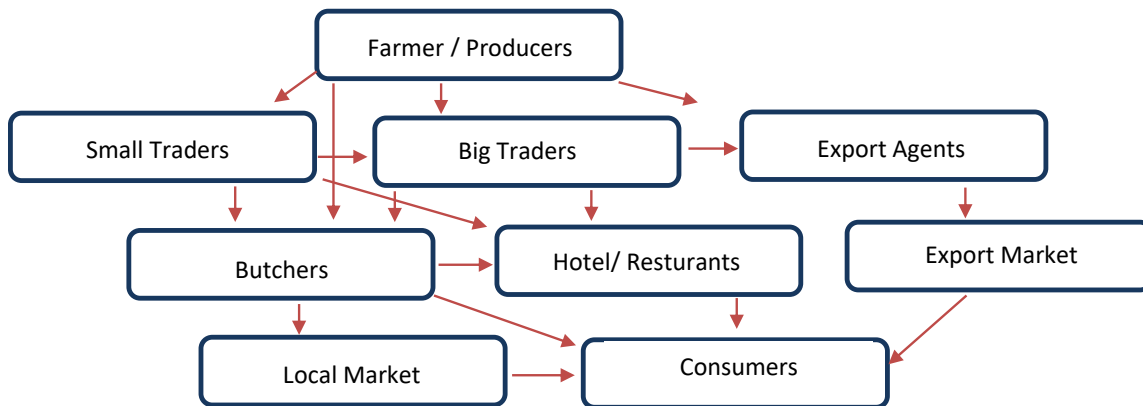


Figure 1. Generic market channel for fattened sheep

Market Competitiveness

In this context, market competitiveness implies the capability of the fattening business to supply better value products to consumers than other competitors. This could also mean the provision of the same quality product at a lower price than other competitors charge. Market competitiveness therefore implies efficiency both in production and marketing. The efficiency of resource use and cost-effectiveness need to be among the key principles of the business to remain competitive in the market. Another dimension of market

competitiveness is creating awareness among potential consumers about the value propositions of the business and its products. Continuous and reliable promotion is required to inform consumers of the key attributes of the product of the business. Every business is unique, and this uniqueness can be used as promotional material in a way that is accessible to consumers.

Value Proposition

As indicated above, not two fattening businesses are the same. However, it is generally true that sheep fattening produces animals with high-quality and healthy meat compared to the regular production of sheep. The availability of the pedigree and medical history of the animals is an important value that consumers usually appreciate in Ethiopia. A mere ear tag has proven to be an important quality indicator in rural Ethiopia. Such businesses need to therefore focus their marketing strategies on meat quality and documentation that can help trace the animals or the meat that they produce. It is important to note that it is not only fellow fatteners who are producing fattened sheep. Ordinary farmers also fatten sheep in their way without any of the services or infrastructure presented in this model. Consumers might not be able to differentiate the animals of the different suppliers. This is why such businesses need to identify their unique attributes and invest in communicating them.

Marketing Channels

Each location has different actors and routes to get the fattened sheep and/or meat to the final consumers. The following figures (Figures 2 to 4) show these differences and unique patterns.

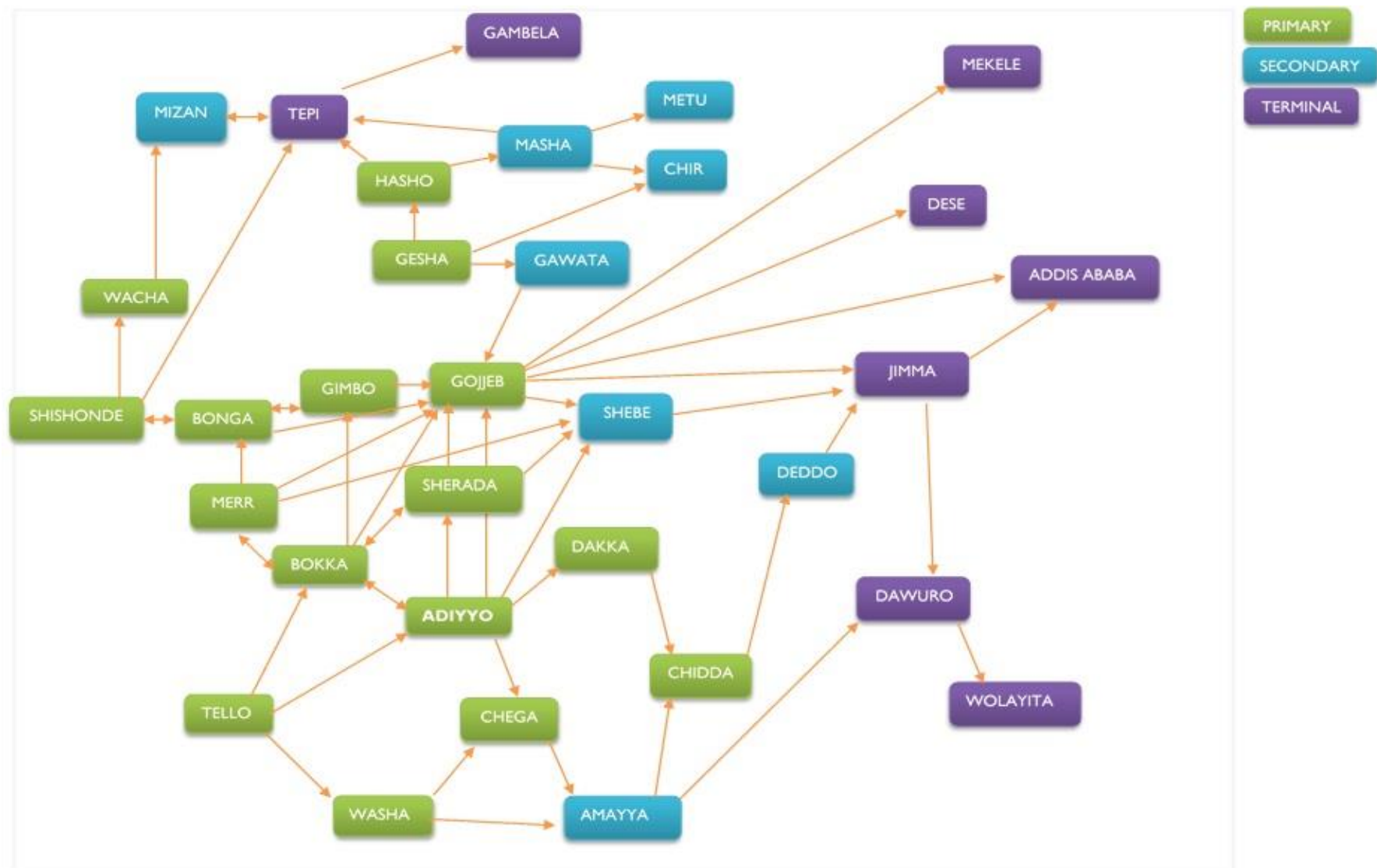


Figure 2. Market routes: Bonga

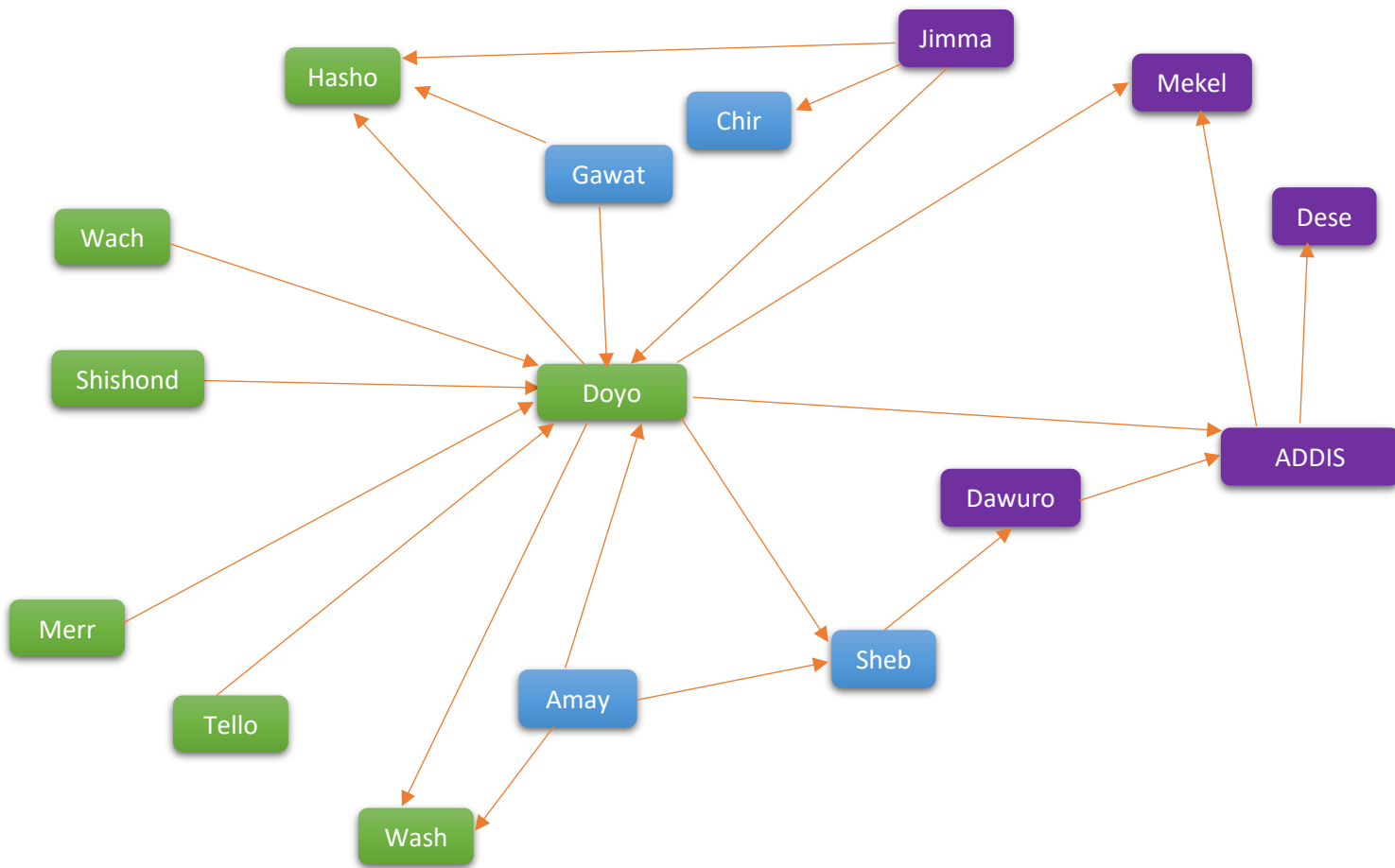


Figure 3. Market routes: Doyo Gena

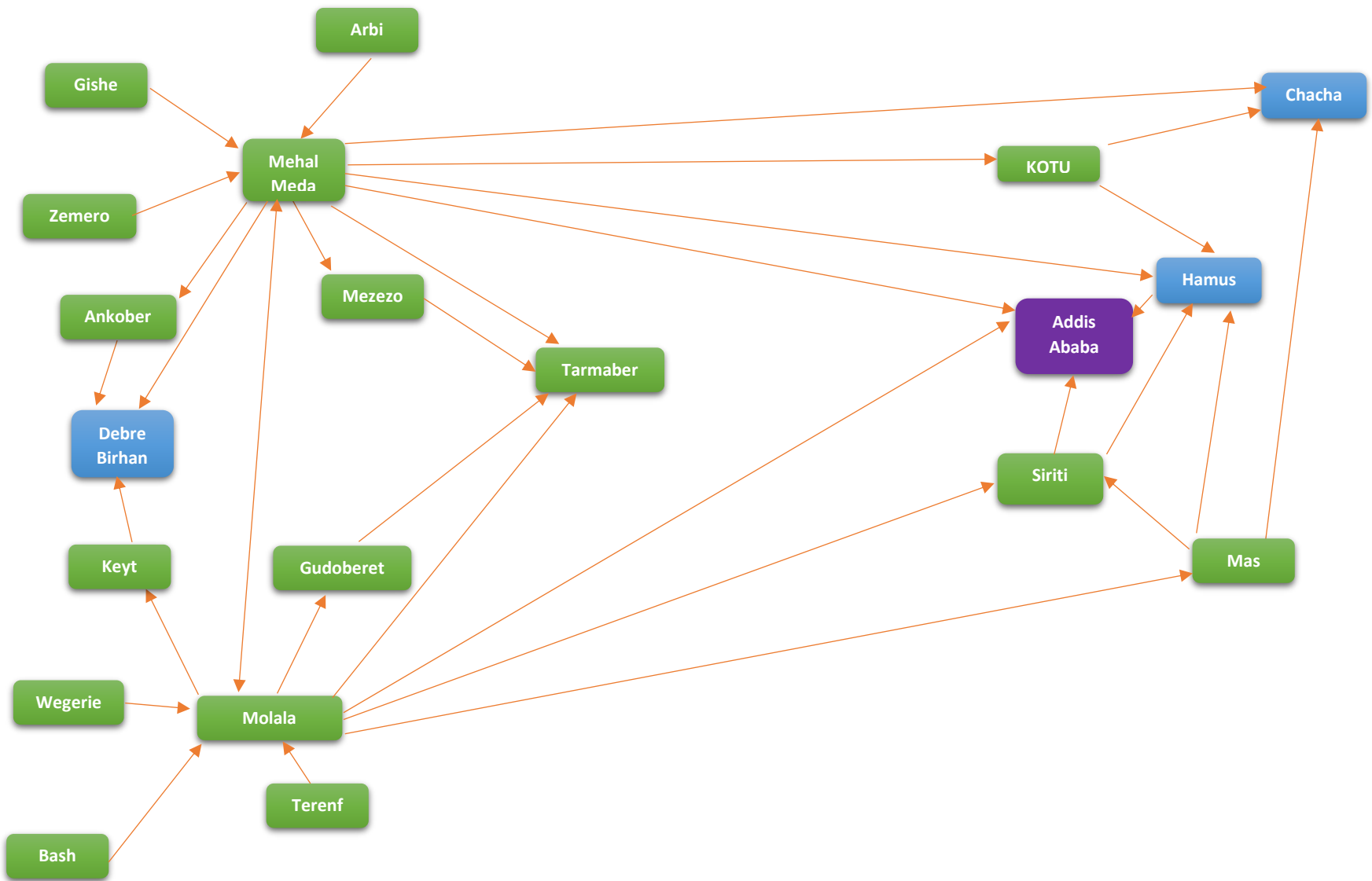


Figure 4. Market routes: Menz

Resource and Management

This section presents the resources and management mechanism required to establish and run the business profitably.

Scope of management: this business requires entrepreneurs to consider various factors such as selecting the right breed, providing quality feed and water, ensuring proper housing and sanitation, regular veterinary care, and developing a marketing strategy. Like any other business, the establishment costs would outweigh the returns over the first couple of seasons. There are also natural and planned growths of the business that are going to be driven by the key enabling factors in the production and marketing environments. Hence, the management needs to consider the temporal aspect of the cash flow and changes in the size of the business as well.

Suitable location: Suitable location, in terms of grazing land, and distance to market, is critically important in establishing a profitable fattening business. There must be sufficient space for grazing and free movement of the animals. Overcrowding can lead to stress, disease outbreaks, and reduced productivity. The location of the grazing land is also related to the quality of the forage available to the animals. Poor grazing resources can lead to nutrient deficiencies and poor growth rates. The distance from the market is also an important consideration that needs to be made in determining the location of the fattening business. Access to all-weather roads and transportation facilities needs to be embedded in the location identification process.

Housing and facilities: Housing and facilities are crucial in managing a sheep-fattening business. The animals should be housed in clean and well-ventilated facilities that protect them from extreme weather conditions and predators. Adequate space and proper flooring are also important for the animals' comfort and health. Additionally, the facilities should be equipped with proper feeding and watering systems and waste management facilities. Proper housing and facilities can improve the animals' well-being and productivity, leading to higher profits for the business.

Selection of animals: Selection Of the right composition of animals is the most important aspect of the sheep fattening business. Not all breeds have equal responses to the feeds and forages that can be available to rural entrepreneurs. There is also a difference in disease and drought tolerance among breeds of sheep. Therefore, the fatteners need to identify the best breed for their business and ensure that there is a continuous supply of the breed for their business to remain competitive.

Animal health management: Health management is a critical aspect of running a sheep-fattening business. Disease prevention and control measures should be implemented to ensure that the animals remain healthy and productive. This includes regular check-ups, vaccinations, parasite control, preventive care measures to minimize the risk of disease outbreaks, and monitoring for signs of illness. Sick animals should be isolated and treated promptly to prevent the spread of disease. Regular cleaning and disinfection of equipment and facilities can go a long way to maintaining a healthy environment for animals. A veterinarian should be consulted for advice on disease prevention and control measures. By prioritizing health management, the business can minimize losses due to illness and maintain a profitable operation.

Feed and other inputs (water, and veterinary care): the health and performance of the sheep being fattened depends heavily on the quantity and quality of these inputs. Without adequate nutrition, animals cannot grow and develop properly and may become more susceptible to disease and other health issues. Similarly, access to clean water is critical for hydration and overall health. Veterinary care is necessary for the prevention and treatment of illness and injury, ensuring that animals can thrive and reach their full potential.

Skilled labor: fattening can hardly be conducted by unskilled labor. As much as there are tasks that can be fully handled by unskilled workers, fattening business has different components that need skilled labor that needs to be available continuously or periodically. For instance, breed identification and initial veterinary diagnosis of the animals brought into the business need to be done by trained animal scientists and veterinarians. Such

businesses can also benefit from professional help in the marketing and distribution of the products, ensuring that they reach the right customers at the right time.

Access to Finance: Access to financial capital is a critical challenge to small-scale entrepreneurs, as traditional financial institutions have prohibitive requirements that make it difficult for rural startups to get access to their services. Instead, entrepreneurs can explore alternative financing options, such as Banks or Microfinance institutions, credit associations, self-help groups, and grants to get access to financial resources. Accessing the required financial capital can be useful only if the business has the right financial management system in place.

Tailored Training: To establish and run a profitable fattening business, rural youth and other groups of people need to get tailor-made and continuous training. It is known that at their initial stage, these startups can hardly afford to pay for such services. However, there are national and regional level public programs that plan to improve the capacity of rural entrepreneurs that can be accessed individually or in groups. Training programs can also be provided by NGOs, or private training institutions, and should be tailored to the specific needs of sheep-fattening entrepreneurs. Such training programs can help entrepreneurs improve their knowledge and skills, leading to better animal health and productivity. In addition to training, entrepreneurs can also benefit from networking with other entrepreneurs and industry professionals. This can provide valuable insights and knowledge-sharing opportunities, as well as potential business partnerships. With the limited information and technical skills, the rural youth have, it is difficult to expect these business owners to remain competitive in the market.

Marketing and Sales: sheep fattening is a business that aims at making a profit. The level and the continuity of profit generation from the business depend almost entirely on the way the marketing is designed and implemented. Identification of the types and preferences of consumers, selecting the best channel to reach out to the consumers, and targeting the high-demand seasons are among the key issues that a fattener needs to invest

in. Entrepreneurs need to establish a personal connection with their customers, build brand loyalty, and target higher prices for their products. This requires a significant investment of time and resources, as entrepreneurs must handle all aspects of marketing, sales, and customer service by themselves.

Computing facilities: sheep fattening businesses will benefit tremendously if they make use of basic computing techniques to manage their production, marketing, and financial management data. Simple computers with basic software can be used to help farmers understand the input-output relationships, production cost and output price patterns, and their market performance. This can greatly improve efficiency and productivity, while also reducing costs that arise from information asymmetry or poor planning. In many places in Ethiopia, even small computers have forbidding prices, especially for young unemployed members of the rural community. However, such equipment will have a significant effect in reducing the cost and hence increasing the profitability of the business.

Strategies for Value Addition and Market Access

Processing and packaging: entrepreneurs involved in fattening business can add value by adding basic processing, like slaughtering and meat packaging. This could help them to cater to consumers who might be interested in small portions of meat or might not have the facilities to slaughter the animals themselves. The packed meat could be sold directly to consumers or through retail outlets. This, of course, entails investment in processing equipment, packaging materials, and targeted promotion.

Contractual arrangements: Sheep-fattening entrepreneurs could reduce their losses due to price fluctuations by having flexible contractual agreements with enterprises and other institutional consumers of fattened animals or associated products. Agreements could be made with restaurants, meat shops, or schools and military facilities that continuously consume meat in large quantities. Such agreements could include the provision of inputs and technical assistance which could have been difficult to get for the new entrepreneurs.

Direct marketing: entrepreneurs who are to engage in fattening business can broaden the scope of their market by establishing different direct marketing routes. For instance, establishing farm shops, and online markets with delivery services. This will help minimize the information asymmetry between sellers and buyers resulting in better prices per unit of product.

Partnership

Partnerships create a lot of opportunities for small entrepreneurs especially in the rural context where these fattening businesses are situated. Carefully crafted partnerships will help business owners to reduce costs and increase the efficiency of production and marketing. Partnerships help through improved access to information, distributed overhead cost of production and marketing, and increasing competitiveness in the market through economies of scale or bigger market presence. Therefore, sheep fatteners need to plan for strategic partnerships that aim at improving the production and/or marketing of their products. Such businesses can partner with the following:

- Local feed suppliers: to obtain high-quality feed at a lower cost.
- Veterinarians or animal health experts: to maintain the health of their flocks and prevent disease outbreaks.
- Processors or distributors: to ensure that their products are properly packaged and labeled and to access larger markets.
- Agricultural research and extension institutions: to have access to scientific information on all aspects of their business.
- Sheep keepers: to ensure a continuous supply of high-quality sheep for the fattening business.
- Fellow fatteners: to benefit from collective actions both in production and in the marketing of inputs and outputs of the business.

Cost Structure

The following costs are involved in sheep-fattening operations:

Input Cost

1. **Purchasing stock:** initial investment in acquiring the animals can be significant, but it is important to choose a healthy and high-quality stock to ensure a good growth rate and profitability.
2. **Vaccination and medication** are essential to maintain the health of the animals and prevent disease outbreaks that could lead to significant losses.

Production Cost

3. **Feed:** is a major expense in sheep fattening, as the animals require a diet that is high in energy and protein.
4. **Labor:** includes not only the time spent feeding, watering (this includes transporting the animal to a reservoir, local river, or lake), and caring for the animals but also the cost of hiring skilled workers who can monitor the health and growth of the animals.
5. **Housing and equipment:** essential to creating a safe and comfortable environment for the animals.

Marketing Costs: These are costs that the fattening business incurs to market its products efficient and competitive. This includes advertising, packaging, and promotion expenses to ensure that your products are reaching the right audience and generating sales.

Overhead costs: Utilities, Insurance, and Taxes.

Financial Analysis

To evaluate the financial viability of the sheep-fattening business, a thorough financial analysis has been done. This section summarizes the assumption and analysis done to evaluate the financial viability of the fattening business.

Methodology of the Financial Analysis

- A sheep production system for fattening is considered in the project.
- Revenue estimates are derived mainly from the sale of fattened sheep.
- Project worth analysis is done using the current interest rate, i.e., 9.25%.
- Key assumptions
 - A fattening business will start with 50 sheep in one cycle of 90 days.
 - Mortality rate is 3%
 - Ram replacement rate: 5%.
 - The price of fattened sheep will increase by 38% per year.
 - The purchasing cost of sheep will increase by 26% per year.
 - The cost of other expenses (e.g., feed, veterinary costs, labor costs, utilities, etc.) will increase by 19% per year.

Financing Assumptions

- The interest rate is 9.25%.
- Income tax is 35%.

Depreciation Rates

- Housing (renovating of existing building structure) = 5% per year.
- Office Furniture and Equipment = 20% per year.

Total Initial Investment Cost

- The costs in this document represent an average scenario for producers; expenses will vary depending on the producer and their management decisions.
- The total initial investment cost of the project including working capital is estimated in the three intervention sites (Table 2).

Table 2. Total initial investment cost

Costs	Common costs	Bonga	Doyo Gena	Menz
Purchasing cost of livestock		140,000	125,000	125,000
Housing (Renovating of existing building structure)	10,000			
Feed storage	1,000			
Total initial costs	11,000	151,000	136,000	136,000

Financial Evaluation

Net present value (NPV) and internal rate of return (IRR) were calculated to investigate the financial feasibility of the fattening business. A positive NPV and an IRR greater than the current interest rate (discount rate) of 9.25 percent show a financially feasible investment. As indicated below in the tables (Tables 3 to 5), sheep fattening is a profitable business in all three locations. Interestingly, the NPV and IRR values are very comparable across the locations.

Table 3: Financial analysis summary for sheep fattening Bonga

Bonga											
Year		1	2	3	4	5	6	7	8	9	10
Capital	11,000										
Income											
Market Sheep		332,500	458,850	633,213	873,834	1,205,891	1,664,129	2,296,499	3,169,168	4,373,452	6,035,363
Revenue		332,500	458,850	633,213	873,834	1,205,891	1,664,129	2,296,499	3,169,168	4,373,452	6,035,363
Expenses											
Feed costs		45,360	53,978	64,234	76,439	90,962	108,245	128,812	153,286	182,410	217,068
Veterinary costs		24,000	28,560	33,986	40,444	48,128	57,272	68,154	81,104	96,513	114,851
Other expenses		102,804	122,337	145,581	173,241	206,157	245,327	291,939	347,407	413,414	491,963
Purchasing cost of Sheep		140,000	176,400	222,264	280,053	352,866	444,612	560,211	705,865	889,390	1,120,632
Total Expenses		312,164	381,275	466,065	570,176	698,114	855,456	1,049,115	1,287,662	1,581,728	1,944,514
Gross Profit	(323,164)	20,336	77,575	167,148	303,658	507,777	808,674	1,247,383	1,881,506	2,791,724	4,090,850
Depreciation		500	500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500
Profit Before Tax	19,836	77,075	162,648	299,158	503,277	804,174	1,242,883	1,877,006	2,787,224	4,086,350	
Profit tax (35%)		6,942.60	26,976.19	56,926.65	104,705.16	176,147.05	281,460.76	435,009.17	656,952.15	975,528.28	1,430,222.38
Net Profit	(323,164)	12,893	50,099	105,721	194,452	327,130	522,713	807,874	1,220,054	1,811,695	2,656,127
Net Present Value (10%)		2,924,094									
IRR		53.8%									

Table 4: Financial analysis summary for sheep fattening Doyo Gena

Doyo Gena											
	0	1	2	3	4	5	6	7	8	9	10
Capital	11,000										
Income											
Market Sheep		308,750	426,075	587,984	811,417	1,119,756	1,545,263	2,132,463	2,942,799	4,061,062	5,604,266
Revenue		308,750	426,075	587,984	811,417	1,119,756	1,545,263	2,132,463	2,942,799	4,061,062	5,604,266
Expenses											
Feed costs		45,360	53,978	64,234	76,439	90,962	108,245	128,812	153,286	182,410	217,068
Veterinary costs		24,000	28,560	33,986	40,444	48,128	57,272	68,154	81,104	96,513	114,851
Other expenses		102,804	122,337	145,581	173,241	206,157	245,327	291,939	347,407	413,414	491,963
Purchasing cost of Sheep		125,000	157,500	198,450	250,047	315,059	396,975	500,188	630,237	794,098	1,000,564
Total Expenses		297,164	362,375	442,251	540,171	660,306	807,819	989,093	1,212,033	1,486,436	1,824,446
Gross Profit	(308,164)	11,586	63,700	145,732	271,247	459,449	737,444	1,143,370	1,730,765	2,574,626	3,779,820
Depreciation		500	500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500
Profit Before Tax		11,086	63,200	141,232	266,747	454,949	732,944	1,138,870	1,726,265	2,570,126	3,775,320
Profit tax (35%)		3,880.10	22,119.94	49,431.22	93,361.28	159,232.27	256,530.46	398,604.60	604,192.91	899,544.12	1,321,361.99
Net Profit	(308,164)	7,206	41,080	91,801	173,385	295,717	476,414	740,266	1,122,073	1,670,582	2,453,958
Net Present Value (10%)		2,663,817									
IRR		52.2%									

Table 5: Financial analysis summary for sheep fattening Menz

Menz											
	0	1	2	3	4	5	6	7	8	9	10
Capital	11,000										
Income											
Market Sheep		308750	426,075	587,984	811,417	1,119,756	1,545,263	2,132,463	2,942,799	4,061,062	5,604,266
Revenue		308,750	426,075	587,984	811,417	1,119,756	1,545,263	2,132,463	2,942,799	4,061,062	5,604,266
Expenses											
Feed costs		45,360	53,978	64,234	76,439	90,962	108,245	128,812	153,286	182,410	217,068
Veterinary costs		24,000	28,560	33,986	40,444	48,128	57,272	68,154	81,104	96,513	114,851
Other expenses		102,804	122,337	145,581	173,241	206,157	245,327	291,939	347,407	413,414	491,963
Purchasing cost of Sheep		125,000	157,500	198,450	250,047	315,059	396,975	500,188	630,237	794,098	1,000,564
Total Expenses		297,164	362,375	442,251	540,171	660,306	807,819	989,093	1,212,033	1,486,436	1,824,446
Gross Profit	(308,164)	11,586	63,700	145,732	271,247	459,449	737,444	1,143,370	1,730,765	2,574,626	3,779,820
Depreciation		500	500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500
Profit Before Tax		11,086	63,200	141,232	266,747	454,949	732,944	1,138,870	1,726,265	2,570,126	3,775,320
Profit tax (35%)		3,880.10	22,119.94	49,431.22	93,361.28	159,232.27	256,530.46	398,604.60	604,192.91	899,544.12	1,321,361.99
Net Profit	(308,164)	7,206	41,080	91,801	173,385	295,717	476,414	740,266	1,122,073	1,670,582	2,453,958
Net Present Value		2,663,817									
IRR		52.2%									

Challenges of Establishing and Running Sheep Fattening Business

Starting and running a sheep-fattening business in rural Ethiopia will not be an easy task. The challenges that entrepreneurs face would be different from place to place. However, the following will be generally relevant to running such a business in rural Ethiopia.

- **Feed shortage:** Feed shortage is the most important challenge sheep producers are facing throughout the country. Fatteners will experience the same problem with worse consequences because of the relatively tighter calendar they have to follow to be profitable. The limited supply of commercial feed in the country is not going to help either. This is a challenge the entrepreneurs must plan for unless they have enough land to produce feed and forage.
- **Diseases and pests:** Pests and diseases are the second most important constraint that sheep keepers face in Ethiopia. Disease outbreaks and pests pose a significant challenge for sheep-fattening businesses. These can lead to high mortality rates, low productivity, and increased costs for entrepreneurs. The problem is more of a lack of veterinary services to protect the animals from well-known diseases and pests. The fatteners need to establish a formal linkage with veterinary service providers while establishing their business. Without sufficient and timely investment in health management services, the fattening business cannot stay afloat.
- **Limited access to rural financing:** another important challenge that sheep-fattening startups in rural Ethiopia are likely to face is lack of financing. There are limited financial institutions in rural areas to start with. These few institutions are not interested in financing smallholder enterprises. Whenever such services are available, the requirements are forbidding such that the type of business we are discussing in this document hardly qualifies for formal financial service.
- **Lack of market infrastructure:** rural areas in Ethiopia are characterized by limited road networks. The lack of roads has also limited the availability of transportation services as

well as limiting the size of the market for the products of the business. Hence, transportation of animals is usually done on foot where animals are often trekked for hours. Because of trekking, the animals end up thirsty and hungry because of lack of water and feed along the way or in the markets. Once in the markets, scorching sun and rainfall could also harm the animals, reducing their market returns, as markets hardly have any sheds or covers for animals.

- **Competition:** rural households keep livestock along with their crop production and other livelihood activities. Fattening is a common practice among rural households in Ethiopia. This creates strong competition for the consumers in the small rural markets leading to lower prices and reduced profits. This could end up discouraging the entrepreneurs. They need to capitalize on the unique value proposition of their business and always aim for efficiency so that they can remain competitive and profitable.

Management plan

Managing a sheep-fattening business requires different skills. Animal selection and husbandry, resource management, human resource management, marketing management, and risk-coping mechanism development are some of the key tasks of managing a fattening business. Therefore, such a business might not be efficiently managed merely by the owner. Hiring temporary and permanent qualified managers needs to be among the key considerations to be made by the entrepreneurs.

References

- Abate, D. and Addis, Y. (2021) “Factors affecting the intensity of market participation of smallholder sheep producers in northern Ethiopia: Poisson regression approach,” *Cogent Food & Agriculture*, 7(1). Available at: <https://doi.org/10.1080/23311932.2021.1874154>.
- CSA, (Central Statistical Agency) (2021) *Federal Democratic Republic of Ethiopia Central Statistical Agency Volume II Report on Livestock and Livestock Characteristics (Private Peasant Holdings)*. *Statistical Bulletin 589*. Addis Ababa.
- Gizaw, S. *et al.* (2010) “Sheep and goat production and marketing systems in Ethiopia: characteristics and strategies for improvement.” Available at: <https://hdl.handle.net/10568/2238> (Accessed: December 19, 2023).
- Kassa, B.T., Haile, A.G. and Essa, J.A. (2011) “Determinants of sheep prices in the highlands of northeastern Ethiopia: implication for sheep value chain development,” *Tropical Animal Health and Production*, 43(8), pp. 1525–1533. Available at: <https://doi.org/10.1007/s11250-011-9837-x>.
- Tadesse, E., Negesse, T. and Abebe, G. (2015) “Sheep production and marketing system in southern Ethiopia: the case of Awassazuria district,” *Tropical Animal Health and Production*, 47(7), pp. 1417–1425. Available at: <https://doi.org/10.1007/s11250-015-0852-1>.