

Pre-Feasibility Study

SHEEP FATTENING FARM



Small and Medium Enterprises Development Authority

Ministry of Industries & Production

Government of Pakistan

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Introduction to SMEDA

The Small and Medium Enterprise Development Authority (SMEDA) was established with the objective to provide fresh impetus to the economy through the launch of an aggressive SME support program.¹

Since its inception in October 1998, SMEDA had adopted a sectoral SME development approach. A few priority sectors were selected on the criterion of SME presence. In depth research was conducted and comprehensive development plans were formulated after identification of impediments and retardants. The all-encompassing sectoral development strategy involved recommending changes in the regulatory environment by taking into consideration other important aspects including financial aspects, niche marketing, technology upgradation and human resource development.

SMEDA has so far successfully formulated strategies for sectors including, fruits and vegetables, marble and granite, gems and jewelry, marine fisheries, leather and footwear, textiles, surgical instruments, urban transport and dairy. Whereas the task of SME development at a broader scale still requires more coverage and enhanced reach in terms of SMEDA's areas of operation.

Along with the sectoral focus a broad spectrum of business development services is also offered to the SMEs by SMEDA. These services include identification of viable business opportunities for potential SME investors. In order to facilitate these investors, SMEDA provides business guidance through its help desk services as well as development of project specific documents. These documents consist of information required to make well-researched investment decisions. Pre-feasibility studies and business plan development are some of the services provided to enhance the capacity of individual SMEs to exploit viable business opportunities in a better way. This document is in the continuation of this effort to enable potential investors to make well-informed investment decisions.

¹ For more information on services offered by SMEDA, please visit our website: www.smeda.org.pk

1 PURPOSE OF THE DOCUMENT

The objective of the pre-feasibility study is primarily to facilitate potential entrepreneurs in project identification for investment. The project pre-feasibility may form the basis of an important investment decision and in order to serve this objective, the document/study covers various aspects of project concept development, start-up, and production, finance and business management.

2 PROJECT PROFILE

The project is related to setting up a sheep fattening farm. The document highlights all the marketing, management, and financial aspects required for the establishment and successful running of the project.

2.1 Project Brief

The farm will serve the purpose of fattening of sheep. The project can be established in parts of the country where sheep farming is already taking place. Livestock producers can obtain three to four flocks in one year depending upon their production and management techniques. The maximum Capacity of the farm is taken as 490 animals in one production cycle. The animals can be marketed in the local Piri as well as sold directly to the meat shops.

The total project investment is Rs. 4.5 million with a Project Internal Rate of Return (IRR) of 30% against the Capital Cost (WACC) of 16%. The total project investment would be paid back in approximately 3.82 years.

2.2 Opportunity Rationale

Demand for the livestock products has increased greatly in past two decades. The major cause in increase of demand of livestock products is continuing population growth, increase in per capita income, degree of urbanization and change in food consumption patterns. The continuously increasing demand has stretched the capacity of existing livestock production systems.

Until recently the expansion of live stock food production was dependent on increased numbers of animals rather than higher carcass weight per animal. As the result of the higher demand, the livestock producers have to shift their focus to increase the use of new recourses rather then depending on the old production system of pastures. The new production techniques would warrant stall/ supplementary feeding, non-conventional and economical feeding techniques and improved genetic material, the livestock farming can become a cost effective enterprise with its down stream positive effects in the farming community. Livestock producers can adopt non-conventional feed preparation and feeding techniques like treatment of wheat/ rice straws and other crop residues with urea or ammonia, molasses bocks, silage making , concentrate mixtures with low cost formulae, feed lots, semi intensive farming and ewe flushing etc. such techniques have already been tested and demonstrated to the farmers under different projects. The country can thus also be benefited with increased productivity of animal protein.

Based on the above facts, this pre-feasibility for sheep fattening having production capacity of 490 animals per production cycle has been prepared for interested entrepreneurs as a guidance tool.

2.3 Market Entry Timing

The production cycle has to be adjusted with the supply and demand fluctuations within the country which fluctuates during the year depending upon Eid-Azha and winter season. Since the producer will be obtaining a number of flocks in a year it is suggested that at least one of its flock is ready to be sold at Eid-ul –Azha for better profits.

Peak Season: Supply and demand for goats and sheep are at peak before Eid-Azha, due to mass slaughter for Qurbani. A large Number of middlemen come to markets from major urban centers of the country to buy stocks and transport them to their areas.

Another season with higher supply are the months of November and December. In these months lambs and kids become adult, gain weight and no more depend on their mothers, and producers bring them to market for sale. Additionally, Nomad and other livestock breeders want to sell their surplus stock because it is very difficult to breed them in winter.

Off-peak Season: June and July is off-peak season for livestock supply and demand because February, March and April are reproductive season for goats and sheep and newly born lambs and kids depend on mother. Moreover, consumption of meat decreases during summer. In this season, goats and sheep are also used for milking purpose.

2.4 Proposed Business Legal Status

The business can be started as sole proprietorship or partnership because of great potential involved. Furthermore, comparatively fewer complications are involved in forming, administering and running the sole proprietorship or partnership businesses.

2.5 Proposed Product Mix

The farm would focus on the rearing of young stock for fattening and marketing. Lambs and kids from six to eight months of age will be purchased and resold in the market after a fattening period of 90 to 100 days. Additional raw materials produced would be manure and wool which would be sold in local markets to agricultural farmers and carpet manufacturers respectively.

2.6 Production Capacity

The farm will start production with 400 animals. The farm will achieve maximum production capacity of 490 animals per production cycle in its 3rd year. The limit of 490 animals has been imposed on the farm because very large flock would be difficult to manage.

2.7 Project Investment

The total project investment is Rs. 4.50 Million which includes working capital of Rs. 1.16 Million and Capital Cost of Rs. 3.34 Million. It is assumed that the project would be totally equity financed.

2.8 Recommended Project Parameters

Table 2-1

| Max Capacity | | Human Resource | Technology/Machinery | Location |
|-------------------|-----|----------------|----------------------|---|
| 490 Sheep | | 8 | Local Made | Quetta & other feasible livestock rearing areas |
| Financial Summary | | | | |
| Total Cost | IRR | NPV | Pay Back Period | Cost Of Capital (WACC) |
| Rs. 4.50 M | 30% | 3,556,363 | 3.82 Years | 16% |

2.9 Suitable Location

The farm can be established in sheep rearing areas of country where range grazing is available. In Balochistan the suitable areas to establish sheep farm are northern and central parts. Major production areas in Northern Balochistan include Killa Saifullah, Ziarat, Loralai, Zhob, Barkhan and MusaKhel Districts. Central Balochistan induces Sibi, Kalat, Mastung and Khuzdar Districts.

2.10 Key Success Factors/Practical Tips for Success

- The livestock sector is a leading sub-sector of the agriculture sector in Pakistan. In 2005-06 it contributed over 10.7 per cent to the GDP which is more than the aggregated contribution of entire crop sector of the country².
- Swift increases in consumption/demand of live stock products.
- Increasing demand of byproducts, blood, skin, etc.
- Technological improvement in live stock production and processing in developed countries which can be replicated in the developing countries.

2.11 Strategic Recommendations

- Improvement of individual animal performance through live weight gain.
- Improving the nutrition and feed supply through fodder and forage production and supplementation of feed and improvement of water supply.
- Improvement in livestock management practices taking care of Vaccination, Medicine etc.
- Establishment of the farms in areas where grazing is available.
- New feeding techniques including concentrate feeding and preparation of urea molasses blocks, wheat straw treatment should be used for better results.
- Well-trained/experienced staff adding in the efficiency of the farm.

² Economic Survey of Pakistan

3 CURRENT INDUSTRY STRUCTURE

3.1 Introduction

Over the years, the livestock sector has emerged as a leading sub-sector of the agriculture sector in Pakistan. In 2005-06 livestock accounted for 49.6% of agricultural value added and about 10.7% of GDP. The role of livestock in the rural economy is critical, with approximately 35 million people located in rural areas engaged in raising livestock, which generates approximately 30-40% of their income³. In Balochistan contribution of livestock is estimated to be 40% towards agriculture share, the Livestock is the mainstay of more than 75% of the people inhabiting in the countryside of Balochistan.

Table 3-1 Province Wise Livestock Population in Pakistan

| | Cattle | Buffaloes | Sheep | Goats | Camels | Poultry |
|-----------------|-----------------|-----------------|-----------------|-----------------|---------------|-----------------|
| Pakistan | 29558812 | 27334985 | 26487741 | 53786988 | 920868 | 73647888 |
| N.W.F. | 5967886 | 1927495 | 3363249 | 9599017 | 63952 | 27695116 |
| Punjab | 14412323 | 17747474 | 6361767 | 19831039 | 198964 | 25905928 |
| Sindh | 6925022 | 7340162 | 3958508 | 12572221 | 278424 | 14135540 |
| Balochistan | 2253581 | 319854 | 12804217 | 11784711 | 379528 | 5911304 |

Source: Pakistan Livestock Census 2006: Agricultural Census Organization

According to Livestock Census 2006 there were 29.56 Million heads of cattle, 27.33 million buffaloes, 26.49 million sheep and 53.79 million goats in Pakistan. Nationwide the combined population of large ruminants, i.e. cattle and buffalo, was 56.89 million while the population of small ruminants, i.e. goats and sheep, was 80.27 million.

Province wise distribution shows that different provinces have different strength in specific species of livestock. Geographic conditions including availability of fodder and water makes Punjab more suitable for large ruminants including buffaloes and cattle, Punjab contains 65 percent of buffaloes and 49 percent of cattle in the country. Sindh contains 30 percent of camels, 27 percent of buffalo and 23 percent of goat's population; NWFP contains 20 percent cattle and 18 percent goats of the national population. Balochistan, with its major production of sheep and goats, contains about 48 percent of sheep and 22 percent of goats population in the country.

As compare to the supply the rise in consumption of meat, eggs, and milk in the country is much higher, the two most important factors for this increase in consumption are the growth in population, urbanization and increasing income of people which has led to include a variety of

³ Economic Survey of Pakistan 2005-06

meats, eggs, and dairy products in people diets. One of the most important advantages of this increased consumption is increase in demand of livestock products. Production of different livestock based products is provided in the following table.

Table 3-2, Livestock Products (2001-2006), Pakistan ⁴

| | Milk | Beef | Mutton | Poultry Meat | Wool | Hair | Bones | Fat | Blood | Eggs | Hides | Skin |
|---------|------------|-------|--------|--------------|------|------|-------|-------|-------|---------------|-------|------|
| Year | (000 Tons) | | | | | | | | | Million No's. | | |
| 2001-02 | 27,031 | 1,034 | 683.0 | 355.0 | 39.4 | 19.3 | 339.4 | 126.5 | 42.9 | 7,679 | 7.9 | 39.3 |
| 2002-03 | 27,811 | 1,060 | 702.0 | 370.0 | 39.7 | 19.9 | 347.6 | 129.7 | 44.0 | 7,860 | 8.2 | 40.3 |
| 2003-04 | 28,624 | 1,087 | 720.0 | 378.0 | 40.0 | 20.7 | 356.2 | 132.9 | 45.2 | 8,102 | 8.4 | 42.4 |
| 2004-05 | 29,438 | 1,115 | 739.0 | 384.0 | 40.2 | 20.7 | 365.1 | 136.3 | 45.2 | 8,529 | 8.4 | 42.6 |
| 2005-06 | 31,294 | 1,174 | 782.1 | 462.5 | 40.7 | 23.2 | 384.0 | 143.5 | 49.0 | 9,057 | 9.1 | 45.2 |

Past trends have shown great increase in the production of livestock products which mostly resulted from increased demand. The demand is likely to rise with the passage to time due to continuing population growth, increase in per capita income and change in food consumption patterns. Meat production in Pakistan has increased by 27 % from 1,906,000 Tonnes in 1998-99 to 2,419,000 Tonnes in 2005-06. Despite the fact that the production has increased, due to high rate of population growth, per capita availability of meat in Pakistan increased marginally by 8 % from 14.13 Kg. / person in 1998-99 to 15.31 kg/person in 2005-06.

Table 3-3, Per Capita Availability of Meat in Pakistan ⁵ (000 Tonnes)

| (July-June) | 1998-99 | 1999-00 | 2000-01 | 2001-02 | 2002-03 | 2003-04 | 2004-05 | 2005-06 | % Change |
|---------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|----------|
| 1. Total Production* | 1906 | 1956 | 2014 | 2073 | 2134 | 2185 | 2238 | 2419 | 27 % |
| 2. Per Capita Availability(Kgs/annum) | 14.13 | 14.19 | 14.42 | 14.50 | 14.65 | 14.74 | 15.19 | 15.31 | 8 % |

* = Includes beef, mutton and poultry meat.

Similarly, if we compare Developed countries with developing countries; per capita consumption of meat in developed countries increased from 79 in 1992 to 80 Kg in 2002. In contrast the meat consumption in developing countries has improved from 21.2 kg in 1992 to 28.9 kg per person in

⁴ Economic Survey of Pakistan 2005-06

⁵ Agriculture Statistics of Pakistan 2005-06, Food Agriculture and Livestock Division

2002. It is expected that with the present population growth rate and rising per capita income levels, the demand for meat and milk is likely to further increase.

Table 3-4, Per capita Meat Consumption⁶

Kilograms per person

| | 1992 | 2002 |
|----------------------|------|------|
| Developed Countries | 79.0 | 80.0 |
| Developing Countries | 21.2 | 28.9 |

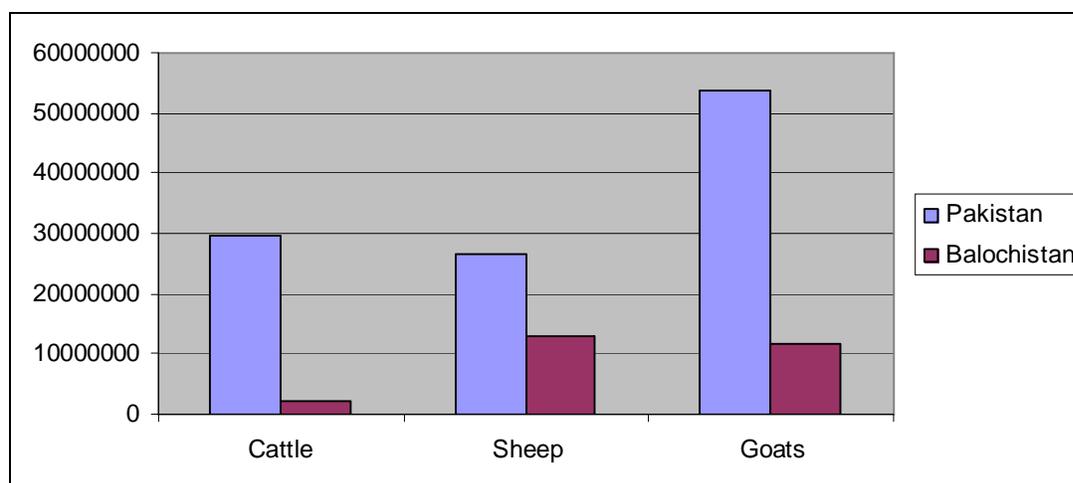
3.2 Balochistan Contribution to the Sector

There are about 12.8 Million Sheep, 11.7 Million Goats, 2.2 Million Cattle and 5.9 Million Poultry in the Province. Out of the national share Balochistan has 48 percent of Sheep 22 percent of Goats and 41 percent of camels. The province is famous for possessing few carpet and mutton quality sheep capable to thrive well under harsh climate and at low level of nutrition namely Bibrik (Beevrugh), Harnai, Balochi and Rakhshani. Population of small and large ruminants & poultry in Balochistan with its percentage contribution to national heard is provided in following table.

Table 3-5, Livestock Population in Balochistan (2006)⁷

| | Cattle | Buffaloes | Sheep | Goats | Camels | Poultry |
|-------------|----------|-----------|----------|----------|--------|----------|
| Pakistan | 29558812 | 27334985 | 26487741 | 53786988 | 920868 | 73647888 |
| Balochistan | 2253581 | 319854 | 12804217 | 11784711 | 379528 | 5911304 |
| Percentage | 7.6% | 1.2% | 48.3% | 21.9% | 41.2% | 8.0% |

Total Number of Cattle, Sheep and Goats in Pakistan and Share of Balochistan Province in National Herd



⁶ <http://earthtrends.wri.org/> World Recourse Institute

⁷ Source: Pakistan Livestock Census 2006: Agricultural Census Organization

4 MARKET ANALYSIS

4.1 Marketing Channels

Historically animals have not been marketed on a regular basis for income as a commercial endeavor but sold in times of need. Old females were sold in the spring to pay for supplies, and adult males in the fall for the production of LANDHI, dried mutton, a winter staple food. However, around population centers i.e. big towns and cities, producers have started to consider animal commercial ventures and targets specific markets.

Annual Horse and Cattle Show held at Sibi also provides farmers an opportunity to market their livestock within province as well as to other provinces. Although livestock marketing is not well established in Balochistan, however there are livestock markets usually called "Pirri" scattered through out the province; but having very limited basic facilities both for farmers and animals. Marketing; and distribution involves many stakeholders; producers (Agro pastoralists), dealers (usually from villages or adjoining areas), wholesalers, butchers, and consumers. It is difficult to be precise about their exact numbers and their role in the marketing process. The marketing takes place on individual animal as well as on lot basis. The different agents involved are described below:-

4.1.1 Producers

Livestock producers are widely dispersed and rarely coordinate with each other. They sell their livestock principally at the village level. Since they sell small ruminants to meet urgent cash demand, the producers are not in a position to bargain very effectively. In a few cases, producers attempt to time the sale of animals to take advantage of seasonal fluctuation, but, in general, the expected price is not a determinant of the decision to sell.

4.1.2 Village Dealers

Village dealers purchase animals from surrounding areas and sell them to wholesalers in town markets. They pay the animal transportation costs, feeding costs and their own transportation and food costs.

4.1.3 Wholesalers and Commission Agents

Wholesalers buy from village dealers in small towns and transport the livestock to Quetta and the major consumption centers in other provinces such as Karachi and Lahore. Wholesalers also sell livestock through commission agents in the consumption centers. These agents are considered as an essential link with the buyers, and undertake the bargaining and arrangements of livestock sales.

4.1.4 Butchers

Mutton, goat meat and beef are sold fresh and now even after refrigeration particularly in Quetta and other warmer areas, in small shops after 8-10 hours of slaughtering in traditional type slaughter houses which lack proper hygienic facilities. Little, if any, meat is carried over to the following day. Most of the gross income returns to butchers come from meat sales, but a

substantial portion is received from by-products such a skin, head, trotters, stomach, lung and liver.

4.1.5 Consumers

Non-graded meat is sold by the butchers in their shops where poor hygienic conditions do exist. The Government regulates consumer prices of essential commodities, one of which is meat, but does not guarantee minimum meat quality standards.

4.2 Wholesale Market Locations

Sheep and goats belonging to nomadic and transhumant graziers of Balochi and Brahvi tribes are marketed, besides Quetta, in Sibi and Jacobabad. They come down from their summer pastures in the highlands of Quetta, Mastung, Nushki, Kalat and Khuzdar districts to spend the winter in the lower plains of Kachhi and Nasirabad. Graziers of the Bugti and Marri tribes also market their surplus animals next to the local markets in Jacobabad and Sibi, alongside flock owners from the Bolan, Sibi, Jaffarabad and Nasirabad districts.

Sheep and goats belonging to the sedentary and transhumant graziers of the Khetran tribes of Barkhan, the Marri tribes of Kohlu agency and the Duki tehsil, the Pathan tribes of Musakhel district, and the Bugti tribes of Dera Bugti agency (Baker and Phailawag) are marketed in Rakhni (Barkhan district) a border check-post located on road to Punjab for further transport and consumption in various towns of Punjab.

Table 4-1, Main Exit Markets with Destination and Species of Livestock:

| <i>Exit Market Location</i> | <i>Destination</i> | <i>Mode of Transport</i> | <i>Species</i> | <i>Source of supply</i> |
|---|---|--------------------------|---|---|
| <u>South-East</u> Sibi and Jacobabad (Sindh) | Karachi, Hyderabad, Sukkur and Parts of Punjab | Rail, Road | Sheep and goats, Cattle and camels, Horses, Donkeys | Balochi Tribes Brahvi Tribes Marri Tribes |
| <u>South-West</u> Bella, Doreji, Kanraj. | Karachi (Sindh) | Road, on hoof | Sheep and goats, Cattle | Transhumant grazier from Khuzdar, Awaran and Lasbela |
| <u>North-East</u> Rakhni | Lahore (Punjab) Faisalabad (Punjab) Multan (Punjab) | Road, on hoof | Sheep and goats | Khetran Tribe Bugti and Marri tribes Pathan tribes Musa Khel |

Source: SMEDA Survey

4.2.1 Mode of Transportation:

Earlier the flocks used to move on hoof to and fro from the markets. Due to expansion of cities and increase of vehicular traffic all around it is no longer possible to bring the animals to markets

on hoofs. Animals are usually transported on small trucks carrying about 70 sheep and goats or 8 to 10 beef animals.

Transportation of stock to other areas positively affected the sale and sale price. If local market is not good, people take their flock to other markets nearby or to Punjab or Quetta. Now they are becoming less and less dependent on middlemen. Transportation modes made the breeder concern about their stocks, due to which they normally bring their sick stocks to hospital.

4.2.2 Taxes etc:

No taxation of any kind is levied on the movement of animals except one time marketing charges on animals brought to 'Pirri' of Quetta located on Takhtani bypass which is collected by the contractor.

4.2.3 Special occasions of marketing:

Eid-ul-Azha is one special occasion when fattened animals especially goats and bullocks are in heavy demand and find good market in Karachi and other big cities like Lahore, Faisal Abad and Sialkot fetching handsome prices to the owners or middlemen.

Another such occasion is availed by the sheep owners of Barkhan, Musakhel, Marri and Bugti Districts at the influx of hunting teams coming from Saudi Arabia and United Arab Emirates. Lambs weighing 20 to 25 kg and yielding 12 to 14 Kg of meat are cherished by "Sheikhs and team members" and offered good price.

5 BASIC REQUIREMENTS AND FARM MANAGEMENT

Sheep Farming does not require very sophisticated machinery and equipment. Following are the basic requirements for Sheep Farm. Barrow

Table 5-1, Machinery and Equipment Requirement

| Description | Unit | Price/Unit Rs. | Cost. Rs. |
|--------------------------|---------|-------------------|------------------|
| Mangers 0.5 feet / sheep | 250 ft. | 100/ft. | 25,000 |
| Hay Racks | 250 ft. | 130/ft. | 32,500 |
| Chaff Cutter | 1 | 25,000 | 25,000 |
| Tube Well | 1 | 950,000 | 950,000 |
| Tubs | 6 | 500 | 3,000 |
| Wheel Barrow | 1 | 4,000 | 4,000 |
| Weight Scale | 1 | 6,000 | 6,000 |
| Total | | | 1,045,500 |

5.1 Selection Criteria

Animals selected for fattening should be from six months to eight months of age. At this age the animal is weaned and used to eating green fodder and grass. As compare to grown up sheep the daily weight gain capacity is also better at this age. Weight and age of all the selected animals should also be similar otherwise the larger and older animals would not let the smaller animals to eat feed according to their requirement. Selected animals should not be sick, weak or with physical disabilities.

5.1.1 Breed Selection

The farmers not only has to select the better breed which can bring results for fattening but also has to select most suitable animals from the selected breed. Through better management the weight gain of these selected breeds would be higher. The most suitable breeds for fattening include Balochi, Harnai and Bibrik sheep.

The animals should be tagged on arrival to the farm, the information to be recorded include breed of animal, live weight of animal and age of animals date of purchase etc.

5.2 Characteristics of Breeds Recommended for Sheep Fattening:

5.2.1 Balochi Sheep

The Balochi sheep originated in the southwest Pakistan, eastern Iran and southern Afghanistan. It is a large sized fat tailed breed important in central, southern and some south-western parts of the Balochistan. It is a mutton and dairy sheep, producing coarse wool. Its fleece is white with pigmented head and legs. Body size varies between 35 and 40 Kg in adult ewes, milk yield between 40-50 kg in a period of about 125 days. The average fleece production is 1.3 – 1.8 Kg.

5.2.2 Bibrik

It is a fat tailed, mutton type sheep that is found in parts of Loralai Kohlu, Bugti, Barkhan, Musakhel and Sibi districts in Balochistan province. It is a medium size breed. Body colour is white with black or brown head. The wool yield is about 1.7 Kg. the tail is fat and short. Average adult live-weight is 27 kg.

5.2.3 Harnai

The Harnai is a fat tail, mutton /wool type breed. They are found in parts of Loralai, Quetta, Sibi and Zhob districts in Balochistan. They are medium size with a white body coat with a black or tan spotted d head and ears. The wool yield is 2.6 kg with medium fiber diameter. They have a compact body with a small fat tail, high fiber density. Its wool is dense and heavy. Average adult body weight is around 30-32 kg. The breed also produces excellent quality mutton.

Table 5-2, Number of Selected breeds by Age in Balochistan (2006)

| Breed | Total | One Year And Above | Young Stock Below one |
|--------------|-------------------|--------------------|-----------------------|
| TOTAL | 12,804,219 | 8,288,070 | 4,516,151 |
| Others | 5,829,373 | 3,614,514 | 2,214,859 |
| Balochi | 3,727,845 | 2,406,734 | 1,321,108 |
| Bibrik | 1,653,702 | 1,160,202 | 493,500 |
| Harnai | 549,405 | 374,783 | 174,624 |
| Rakhshani | 442,077 | 307,206 | 134,874 |
| Damani | 146,789 | 99,601 | 47,187 |
| Kooka | 114,318 | 90,328 | 23,989 |

5.3 Diseases Management:

Numbers of diseases are found in livestock; most common diseases are Peste Des Petits ruminants (KATA), PPR, Pneumonia, Piro Plasmosis, Fasciolasis, Ticks & Mange, sheep pox, Lungs & Stomach worm and Liver fluke. Sometimes the diseases causes epidemic situation in the area. If treatment is not provided on time the animal get weaker and weaker and ultimately die. It is recommended the animals are properly vaccinated before joining in the farm.

Table 5-3, Vaccination Schedules for Sheep

| Month | Sheep / Goat Vaccine |
|-----------|----------------------------------|
| January | Enterotoxaemia |
| February | Anthrax Foot and Mouth Disease |
| March | Sheep Pox / Goat Pox |
| May | Pleuropneumonia |
| July | Enterotoxaemia |
| August | Anthrax , Foot and Mouth Disease |
| September | Sheep Pox / Goat Pox |
| November | Pleuropneumonia |
| December | Enteortoxaemia |

There are a number of external and internal parasites that affect the sheep and goats. In addition to vaccination the animals must be dewormed regularly (quarterly in a year). For external worms like ticks and lice etc., the animals also need to be dipped or sprayed with some proper insecticide for protection.

5.3.1 Protection from External Parasites

There are a number of parasites that affect the productivity of sheep and goats. It is very important to control these parasites to improve the production of animals. A water bath should be constructed in the farm for dipping the sheep with water and insecticide mixture. Normally the bath is constructed with inclined surface and sheep enter the filled bath from one side and leave from the other. It is important the farmer knows the capacity of the bath and use recommended amount of medicine to be mixed in water.

5.3.2 Protection from internal parasites

In the range grazing system sheep also eat eggs of a number of parasites, so it is necessary to deworm the lambs and kids purchased for fattening purpose. The internal parasites include ringworms and liver fluke etc. the medicine for treatment of internal parasites is easily available in the market.

5.4 Production system

Nutrition is a serious limiting factor in the livestock industry of Balochistan with the result that many animals arrive at the market in less than optimal body condition with body weight on the lower end; there is a dire need to ensure feed availability round the year with proper protein contents for increasing livestock productivity. In this regard supplementary feed must be provided to the livestock, especially during periods of drought and scarcity. For instance, perennial grasses, such as sudan grass, Bajra Napier hybrid, or sorghum hybrids could be grown on part of the cultivated land. Green fodder from these crops could be cut during the dry periods to improve feed supply during the lean period.

Similarly non-conventional feed preparation and feeding techniques should be used like treatment of wheat/ rice straws and other crop residues with urea or ammonia, molasses bocks, silage making, concentrate mixtures with low cost formulae, feed lots, semi intensive farming and ewe flushing etc..

For this prefeasibility it is suggested that the farmers use open range grazing as well as give supplementary feed to the animals, animals should obtain at least half of the energy requirement from grazing which is very low cost and suited for local species of sheep. Supplementary feeding on the other hand will help in fattening of animals. Similarly storage and conservation of forage, use of high protein fodders, treatment of crop residues, and mineral nutrients will overall improve forage quality and give better results.

5.4.1 Housing

Housing shade is required to keep the animals safe from rain, wind and other natural elements. It can be made from low cost material i.e. mud bricks etc. To support the roof either girder or bamboo can be used. Shade would be open from one side and close from three sides Sheep can easily live on soft ground and ordinary sheds. For more permanent structure bricks and Garder can also be used. The animal shade must be clean and dry to keep the animals safe from diseases. The sheep on average require 12 - 14 square feet of space in the shed and 24-30 square feed in the open paddock.

Feed Manger: The feed manger should be at least 5 feet long and 5 to 6 inch deep and its height should be between 1 to 1.5 feet. This type of manger is enough for feeding of 8 to 10 animals.

Water Trough: Water trough should be 10 feet to 15 feet long 2 Feet wide and 9 inch deep. This type of trough is sufficient for 100 animals.

5.4.2 Quarantine shed

It is required for holding sick or new animals before rejoining them with the main farm animals. It sufficiently reduces the risk of contagious disease and other parasitical disease in the main farm.

6 REGULATORY ENVIRONMENT⁸

Livestock is generally regulated at provincial level while export of livestock and livestock products are regulated by federal government. The rules and regulations covering different livestock activities are given below:-

- The import and export of livestock and livestock products are regulated by Pakistan Animal Quarantine (Import and Export of Animal and Animal Products) Act, 1979 and Rules 1980.
- The slaughtering of animals is regulated by Animal Slaughter Control Act 1963 and Rules 1965 Union Council (Slaughterhouse Rules, 1961, Bye-laws for Regulation of Public Slaughterhouse, 1980).
- Livestock conservation is regulated by conservation (restriction on slaughter) of useful Animals Act, 1956 while livestock breeding is being regulated by livestock breeding schemes, 1960. The livestock protection is regulated by prevention of cruelty to animal rules, 1961 and Ordinance 1981. Livestock nutrition is being regulated by animal compound feeding Act 1974.
- Livestock health is regulated by Animal Contagious Diseases Act 1948. The livestock product quality is being regulated by Pure Food Ordinance 1960, Rule, Rules 1965 and Agricultural Produce (Grading and Marketing) Act 1972.

⁸ MINFAL

7 HUMAN RESOURCE REQUIREMENT

For this particular project six attendants and a supervisor are required in the early years, which will increase as the capacity of the farm grows in 3rd year.

Table 7-1 Human Resource Requirement

| | Number | Monthly Salary |
|-----------------|--------|----------------|
| Farm Attendants | 7 | 4,000 |
| Farm Supervisor | 1 | 7,500 |

8 LAND AND BUILDING REQUIREMENT

A total of 21,000 sq. feet land would be required for the Farm. An adult sheep normally require 24-30 Sq.ft./Sheep of open space and 12 Sq.ft./Sheep of covered space.

Table 8-1 Land Cost

| Description | Cost/sq.ft | Area in sq.ft | Total Cost (Rs.) |
|-------------|------------|---------------|------------------|
| Land | 15 | 21,000 | 315,000 |

Table 8-2 Building / Shed Construction Cost

| Item | | Space / Animal Sqft. | Total Area Sqft. | Cost/sqft | Total cost. Rs. |
|---|-------|----------------------|------------------|-----------|------------------|
| Shed Space (including quarantine pen for 40 animals & isolation pen for 15 animals) | 555 | 12 | 6,000 | 200 | 1,332,000 |
| Open Paddock and fencing | 555 | 24 | 13,320 | 20 | 266,400 |
| Office | 12X12 | | 144 | 380 | 54,720 |
| Stores for Raw Material | 16X14 | | 224 | 380 | 85,120 |
| Attendants Room | 18X14 | | 252 | 380 | 95,760 |
| Dipping bath | | | | | 55,000 |
| Total Cost | | | | | 1,889,000 |

* Different low cost material including mud brick walls and bamboo or girder roof can be used for construction of shed, store and attendants room.

8.1 Recommended Mode

It is recommended to acquire/buy the total land required for the project.

9 PROJECT ECONOMICS

9.1 Project Cost

| Description | Amount in (Rs.) |
|-------------------------|------------------|
| Total Capital Costs | 3,347,500 |
| Total Working Capital | 1,159,244 |
| Total Investment | 4,506,744 |

9.2 Project Returns

| Description | Equity | Project |
|-------------------------|-----------|-----------|
| IRR | 30 % | 30 % |
| MIRR | 18 % | 18 % |
| Payback Period (yrs) | 3.82 | 3.82 |
| Net Present Value (NPV) | 3,556,363 | 3,556,363 |

9.3 Project Financing

| Description | Percentage | Amount in Rs |
|------------------|------------|------------------|
| Debt Financing | 0 % | 0 |
| Equity Financing | 100 % | 4,506,744 |
| Total | | 4,506,744 |

FINANCIAL ANALYSIS

9.4 Project Cost

| Capital Investment | Rs. in actuals |
|--------------------------------|-----------------------|
| Land | 315,000 |
| Building/Infrastructure | 1,889,000 |
| Machinery & equipment | 1,045,500 |
| Furniture & fixtures | 36,000 |
| Office equipment | 30,000 |
| Pre-operating costs | 32,000 |
| Total Capital Costs | 3,347,500 |
| Working Capital | Rs. in actuals |
| Equipment spare part inventory | 4,000 |
| Livestock | 1,055,244 |
| Upfront land lease rental | - |
| Cash | 100,000 |
| Total Working Capital | 1,159,244 |
| Total Investment | 4,506,744 |
| Initial Financing | Rs. in actuals |
| Debt | - |
| Equity | 4,506,744 |
| Lease | - |
| Export re-finance facility | - |

9.5 Projected Income Statement

| Statement Summaries | | | | | | | | | | SMEDA |
|--|----------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Income Statement | | | | | | | | | | |
| | Rs. in actuals | | | | | | | | | |
| | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 | Year 7 | Year 8 | Year 9 | Year 10 |
| Revenue | 7,338,240 | 8,750,851 | 10,100,427 | 10,706,453 | 11,348,840 | 12,029,770 | 12,751,556 | 13,516,650 | 14,327,649 | 15,187,308 |
| Cost of goods sold | 6,160,320 | 7,305,142 | 8,453,160 | 8,956,645 | 9,490,154 | 10,055,479 | 10,654,520 | 11,289,288 | 11,961,918 | 12,674,669 |
| Gross Profit | 1,177,920 | 1,445,710 | 1,647,267 | 1,749,807 | 1,858,685 | 1,974,291 | 2,097,036 | 2,227,361 | 2,365,731 | 2,512,639 |
| <i>General administration & selling expenses</i> | | | | | | | | | | |
| Administration expense | 105,600 | 103,950 | 109,148 | 114,605 | 120,335 | 126,352 | 132,669 | 139,303 | 146,268 | 153,581 |
| Rental expense | - | - | - | - | - | - | - | - | - | - |
| Utilities expense | 48,000 | 51,360 | 54,955 | 58,802 | 62,918 | 67,322 | 72,035 | 77,078 | 82,473 | 88,246 |
| Travelling & Comm. expense (phone, fax, etc.) | 38,400 | 37,800 | 39,690 | 41,675 | 43,758 | 45,946 | 48,243 | 50,656 | 53,188 | 55,848 |
| Office expenses (stationary, etc.) | 9,600 | 9,450 | 9,923 | 10,419 | 10,940 | 11,487 | 12,061 | 12,664 | 13,297 | 13,962 |
| Professional fees (veterinary) | 36,691 | 43,754 | 50,502 | 53,532 | 56,744 | 60,149 | 63,758 | 67,583 | 71,638 | 75,937 |
| Depreciation expense | 205,600 | 205,600 | 207,961 | 210,323 | 212,684 | 215,045 | 217,406 | 219,768 | 222,129 | 224,490 |
| Amortization expense | 6,400 | 6,400 | 6,400 | 6,400 | 6,400 | - | - | - | - | - |
| Property tax expense | - | - | - | - | - | - | - | - | - | - |
| Miscellaneous expense | 22,015 | 26,253 | 30,301 | 32,119 | 34,047 | 36,089 | 38,255 | 40,550 | 42,983 | 45,562 |
| Subtotal | 472,306 | 484,567 | 508,880 | 527,874 | 547,826 | 562,390 | 584,428 | 607,601 | 631,976 | 657,626 |
| Operating Income | 705,614 | 961,143 | 1,138,387 | 1,221,933 | 1,310,860 | 1,411,900 | 1,512,609 | 1,619,761 | 1,733,754 | 1,855,013 |
| Other income | 75,295 | 116,681 | 160,485 | 206,968 | 254,484 | 303,470 | 353,405 | 404,406 | 456,587 | 569,485 |
| Gain / (loss) on sale of assets | - | - | - | - | - | - | - | - | - | - |
| Earnings Before Interest & Taxes | 780,909 | 1,077,824 | 1,298,872 | 1,428,901 | 1,565,344 | 1,715,370 | 1,866,013 | 2,024,167 | 2,190,341 | 2,424,498 |
| Interest expense | - | - | - | - | - | - | - | - | - | - |
| Earnings Before Tax | 780,909 | 1,077,824 | 1,298,872 | 1,428,901 | 1,565,344 | 1,715,370 | 1,866,013 | 2,024,167 | 2,190,341 | 2,424,498 |
| Tax | - | - | - | - | - | - | - | - | - | - |
| NET PROFIT/(LOSS) AFTER TAX | 780,909 | 1,077,824 | 1,298,872 | 1,428,901 | 1,565,344 | 1,715,370 | 1,866,013 | 2,024,167 | 2,190,341 | 2,424,498 |
| Balance brought forward | | 702,818 | 1,602,577 | 2,611,304 | 3,636,185 | 4,681,376 | 5,757,072 | 6,860,777 | 7,996,449 | 9,168,112 |
| Total profit available for appropriation | 780,909 | 1,780,641 | 2,901,449 | 4,040,206 | 5,201,529 | 6,396,747 | 7,623,085 | 8,884,944 | 10,186,791 | 11,592,610 |
| Dividend | 78,091 | 178,064 | 290,145 | 404,021 | 520,153 | 639,675 | 762,309 | 888,494 | 1,018,679 | 1,159,261 |
| Balance carried forward | 702,818 | 1,602,577 | 2,611,304 | 3,636,185 | 4,681,376 | 5,757,072 | 6,860,777 | 7,996,449 | 9,168,112 | 10,433,349 |

9.6 Projected Balance Sheet

| Statement Summaries | | | | | | | | | | | SMEDA |
|--|------------------|------------------|------------------|------------------|------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Balance Sheet | | | | | | | | | | | |
| | Year 0 | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 | Year 7 | Year 8 | Year 9 | Year 10 |
| | Rs. in actuals | | | | | | | | | | |
| Assets | | | | | | | | | | | |
| <i>Current assets</i> | | | | | | | | | | | |
| Cash & Bank | 100,000 | 1,014,726 | 1,904,310 | 2,913,450 | 3,907,799 | 4,936,557 | 5,969,083 | 7,006,512 | 8,049,690 | 9,099,147 | 13,126,541 |
| Accounts receivable | - | 603,143 | 661,196 | 774,710 | 855,077 | 906,382 | 960,765 | 1,018,411 | 1,079,515 | 1,144,286 | 1,212,943 |
| Finished goods inventory | - | - | - | - | - | - | - | - | - | - | - |
| Equipment spare part inventory | 4,000 | 5,056 | 6,186 | 6,951 | 7,810 | 8,775 | 9,860 | 11,078 | 12,448 | 13,986 | - |
| 1 Livestock and Raw Material | 1,055,244 | 1,017,869 | 1,245,337 | 1,399,261 | 1,572,210 | 1,766,535 | 1,984,879 | 2,230,210 | 2,505,864 | 2,815,588 | - |
| Pre-paid lease interest | - | - | - | - | - | - | - | - | - | - | - |
| Total Current Assets | 1,159,244 | 2,640,794 | 3,817,029 | 5,094,372 | 6,342,896 | 7,618,249 | 8,924,586 | 10,266,210 | 11,647,517 | 13,073,008 | 14,339,484 |
| <i>Fixed assets</i> | | | | | | | | | | | |
| Land | 315,000 | 315,000 | 315,000 | 315,000 | 315,000 | 315,000 | 315,000 | 315,000 | 315,000 | 315,000 | 315,000 |
| Building/Infrastructure | 1,889,000 | 1,794,550 | 1,747,325 | 1,697,739 | 1,645,791 | 1,591,483 | 1,534,813 | 1,475,781 | 1,414,389 | 1,350,635 | 1,284,520 |
| Machinery & equipment | 1,045,500 | 940,950 | 836,400 | 731,850 | 627,300 | 522,750 | 418,200 | 313,650 | 209,100 | 104,550 | - |
| Furniture & fixtures | 36,000 | 32,400 | 28,800 | 25,200 | 21,600 | 18,000 | 14,400 | 10,800 | 7,200 | 3,600 | - |
| Office equipment | 30,000 | 27,000 | 24,000 | 21,000 | 18,000 | 15,000 | 12,000 | 9,000 | 6,000 | 3,000 | - |
| Total Fixed Assets | 3,315,500 | 3,109,900 | 2,951,525 | 2,790,789 | 2,627,691 | 2,462,233 | 2,294,413 | 2,124,231 | 1,951,689 | 1,776,785 | 1,599,520 |
| <i>Intangible assets</i> | | | | | | | | | | | |
| Pre-operation costs | 32,000 | 25,600 | 19,200 | 12,800 | 6,400 | - | - | - | - | - | - |
| Total Intangible Assets | 32,000 | 25,600 | 19,200 | 12,800 | 6,400 | - | - | - | - | - | - |
| TOTAL ASSETS | 4,506,744 | 5,776,294 | 6,787,754 | 7,897,961 | 8,976,987 | 10,080,481 | 11,218,999 | 12,390,442 | 13,599,205 | 14,849,793 | 15,939,004 |
| Liabilities & Shareholders' Equity | | | | | | | | | | | |
| <i>Current liabilities</i> | | | | | | | | | | | |
| Accounts payable | - | 566,732 | 678,433 | 779,912 | 834,058 | 892,361 | 955,183 | 1,022,921 | 1,096,012 | 1,174,937 | 998,911 |
| Short term debt | - | - | - | - | - | - | - | - | - | - | - |
| Total Current Liabilities | - | 566,732 | 678,433 | 779,912 | 834,058 | 892,361 | 955,183 | 1,022,921 | 1,096,012 | 1,174,937 | 998,911 |
| <i>Other liabilities</i> | | | | | | | | | | | |
| Total Long Term Liabilities | - | - | - | - | - | - | - | - | - | - | - |
| <i>Shareholders' equity</i> | | | | | | | | | | | |
| Paid-up capital | 4,506,744 | 4,506,744 | 4,506,744 | 4,506,744 | 4,506,744 | 4,506,744 | 4,506,744 | 4,506,744 | 4,506,744 | 4,506,744 | 4,506,744 |
| Retained earnings | - | 702,818 | 1,602,577 | 2,611,304 | 3,636,185 | 4,681,376 | 5,757,072 | 6,860,777 | 7,996,449 | 9,168,112 | 10,433,349 |
| Total Equity | 4,506,744 | 5,209,562 | 6,109,321 | 7,118,048 | 8,142,929 | 9,188,120 | 10,263,816 | 11,367,521 | 12,503,193 | 13,674,856 | 14,940,093 |
| TOTAL CAPITAL AND LIABILITY | 4,506,744 | 5,776,294 | 6,787,754 | 7,897,961 | 8,976,987 | 10,080,481 | 11,218,999 | 12,390,442 | 13,599,205 | 14,849,793 | 15,939,004 |
| <i>Note: Total assets value will differ from project cost due to first installment of leases paid at the start of year 0</i> | | | | | | | | | | | |

9.7 Projected Cash Flow Statement

| (U) | | | | | | | | | | | |
|---|----------------|----------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| SMEDA | | | | | | | | | | | |
| Rs. in actuals | | | | | | | | | | | |
| | Year 0 | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 | Year 7 | Year 8 | Year 9 | Year 10 |
| Statement Summaries | | | | | | | | | | | |
| Cash Flow Statement | | | | | | | | | | | |
| <i>Operating activities</i> | | | | | | | | | | | |
| Net profit | - | 780,909 | 1,077,824 | 1,298,872 | 1,428,901 | 1,565,344 | 1,715,370 | 1,866,013 | 2,024,167 | 2,190,341 | 2,424,498 |
| Add: depreciation expense | - | 205,600 | 205,600 | 207,961 | 210,323 | 212,684 | 215,045 | 217,406 | 219,768 | 222,129 | 224,490 |
| amortization expense | - | 6,400 | 6,400 | 6,400 | 6,400 | 6,400 | - | - | - | - | - |
| Deferred income tax | - | - | - | - | - | - | - | - | - | - | - |
| Accounts receivable | - | (603,143) | (58,053) | (113,515) | (80,367) | (51,305) | (54,383) | (57,646) | (61,105) | (64,771) | (68,657) |
| Finished good inventory | - | - | - | - | - | - | - | - | - | - | - |
| Equipment inventory | (4,000) | (1,056) | (1,130) | (765) | (859) | (965) | (1,085) | (1,219) | (1,369) | (1,539) | 13,986 |
| Raw material inventory | (1,055,244) | 37,375 | (227,469) | (153,924) | (172,949) | (194,325) | (218,344) | (245,331) | (275,654) | (309,725) | 2,815,588 |
| Pre-paid lease interest | - | - | - | - | - | - | - | - | - | - | - |
| Accounts payable | - | 566,732 | 111,700 | 101,479 | 54,146 | 58,303 | 62,822 | 67,738 | 73,091 | 78,925 | (176,026) |
| Other liabilities | - | - | - | - | - | - | - | - | - | - | - |
| Cash provided by operations | (1,059,244) | 992,817 | 1,114,873 | 1,346,510 | 1,445,594 | 1,596,136 | 1,719,426 | 1,846,962 | 1,978,898 | 2,115,361 | 5,233,880 |
| <i>Financing activities</i> | | | | | | | | | | | |
| Change in long term debt | - | - | - | - | - | - | - | - | - | - | - |
| Change in short term debt | - | - | - | - | - | - | - | - | - | - | - |
| Issuance of shares | 4,506,744 | - | - | - | - | - | - | - | - | - | - |
| Cash provided by / (used for) financing : | 4,506,744 | - | - | - | - | - | - | - | - | - | - |
| <i>Investing activities</i> | | | | | | | | | | | |
| Capital expenditure | (3,347,500) | - | (47,225) | (47,225) | (47,225) | (47,225) | (47,225) | (47,225) | (47,225) | (47,225) | (47,225) |
| Cash (used for) / provided by investing : | (3,347,500) | - | (47,225) | (47,225) | (47,225) | (47,225) | (47,225) | (47,225) | (47,225) | (47,225) | (47,225) |
| NET CASH | 100,000 | 992,817 | 1,067,648 | 1,299,285 | 1,398,369 | 1,548,911 | 1,672,201 | 1,799,737 | 1,931,673 | 2,068,136 | 5,186,655 |
| Cash balance brought forward | | 100,000 | 1,014,726 | 1,904,310 | 2,913,450 | 3,907,799 | 4,936,557 | 5,969,083 | 7,006,512 | 8,049,690 | 9,099,147 |
| Cash available for appropriation | 100,000 | 1,092,817 | 2,082,374 | 3,203,595 | 4,311,819 | 5,456,709 | 6,608,757 | 7,768,820 | 8,938,184 | 10,117,826 | 14,285,802 |
| Dividend | - | 78,091 | 178,064 | 290,145 | 404,021 | 520,153 | 639,675 | 762,309 | 888,494 | 1,018,679 | 1,159,261 |
| Cash carried forward | 100,000 | 1,014,726 | 1,904,310 | 2,913,450 | 3,907,799 | 4,936,557 | 5,969,083 | 7,006,512 | 8,049,690 | 9,099,147 | 13,126,541 |

10 KEY ASSUMPTIONS

10.1 Production Related Assumptions

- The financials provided are for a Sheep fattening farm. The farmers will use range crazing since it is the cheapest source of nutrition and indigenous sheep are better suited for this open area crazing. To get the better results the farmer will use medicine, vaccination and supplementary feeding including feed concentrate/molasses blocks/ urea straw treatment for sheep and goat to gain extra weight.
- The project will initiate with a 400 sheep in single production cycle. Over the years the size of the farm will increase gradually reaching the limit of 490 sheep in single production cycle.
- Sheep will be fed 400 Grams of concentrate two times daily i.e. 200 Grams in morning before grazing and 200 Grams at evening after animals come back from grazing.
- Mortality Rate 2%.

| Costs Assumptions | Price Rs. |
|---|-----------|
| Total Feed Cost/sheep including concentrate and additional green fodder | 970 |
| Vaccination/ Medicine | 50 |
| Purchase Price of Sheep | 2,640 |

| Revenue Assumptions | Price Rs. |
|--|-----------|
| Sale Price of Sheep | 4,680 |
| Additional Revenue from Manure etc. (per year) | 53,000 |

10.2 Financing Assumptions

| | |
|-----------------------------------|-------|
| Debt | 0 % |
| Equity | 100 % |
| Tax rate | 0 % |
| Required rate of return on equity | 16 % |
| WACC | 16 % |

10.3 Depreciation Rates

| | |
|-------------------------|------|
| Building infrastructure | 5 % |
| Machinery and Equipment | 10 % |

10.4 Cash Flow Assumptions

| | |
|--------------------------------------|---------|
| Accounts Receivables Cycle (In Days) | 30 |
| Accounts Payable Cycle (In Days) | 30 |
| Cash on Hand | 100,000 |