

# Kamyab Jawan

## Youth Entrepreneurship Scheme

### Pre-Feasibility Study

Dairy Farm



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**Ministry of Industries & Production**  
**Government of Pakistan**  
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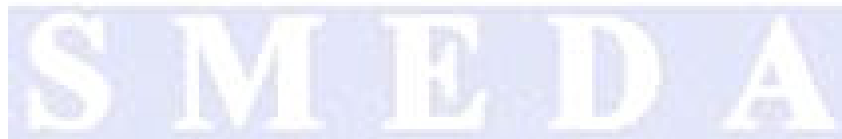
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## 1. DISCLAIMER

This information memorandum is to introduce the subject matter and provide a general idea and information on the subject. Although, the material included in this document is based on data / information gathered from various reliable sources; however, it is based upon certain assumptions which may differ from case to case. The information has been provided on “as is where is basis” without any warranties or assertions as to the correctness or soundness thereof. Although, due care and diligence has been taken to compile this document, the contained information may vary due to any change in any of the concerned factors, and the actual results may differ substantially from the presented information. SMEDA, its employees or agents do not assume any liability for any financial or other loss resulting from this memorandum in consequence of undertaking this activity. The contained information does not preclude any further professional advice. The prospective user of this memorandum is encouraged to carry out additional diligence and gather any information which is necessary for making an informed decision, including taking professional advice from a qualified consultant / technical expert before taking any decision to act upon the information.

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## **2. 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, production, marketing, finance and business management.

The purpose of this document is to facilitate potential investors in dairy farm by providing them with a general understanding of the business with the intention of supporting potential investors in crucial investment decisions.

The need to come up with pre-feasibility reports for undocumented or minimally documented sectors attains greater imminence as the research that precedes such reports reveal certain thumb rules; best practices developed by existing enterprises by trial and error, and certain industrial norms that become a guiding source regarding various aspects of business set-up and it's successful management.

Apart from carefully studying the whole document, one must consider critical aspects provided later on, which form basis of any investment decision.

## **3. INTRODUCTION TO SMEDA**

The Small and Medium Enterprises Development Authority (SMEDA) was established in October 1998 with an objective to provide fresh impetus to the economy through development of Small and Medium Enterprises (SMEs).

With a mission "to assist in employment generation and value addition to the national income, through development of the SME sector, by helping increase the number, scale and competitiveness of SMEs", SMEDA has carried out 'sectoral research' to identify policy, access to finance, business development services, strategic initiatives and institutional collaboration and networking initiatives.

Preparation and dissemination of prefeasibility studies in key areas of investment has been a hallmark of SME facilitation by SMEDA

Concurrent to the prefeasibility studies, a broad spectrum of business development services is also offered to the SMEs by SMEDA. These services include identification of experts and consultants and delivery of need based capacity building programs of different types in addition to business guidance through help desk services.

## 4. INTRODUCTION TO SCHEME

Prime Minister's 'Kamyab Jawan – Youth Entrepreneurship Scheme', for young entrepreneurs between the age group of 21 - 45 years, is designed to provide subsidized financing through the National Bank of Pakistan, Bank of Punjab and Bank of Khyber under the guidance and supervision of the State Bank of Pakistan.

The loans will be disbursed to SME beneficiaries across Pakistan, covering; Punjab, Sindh, Khyber Pakhtunkhwa, Balochistan, Gilgit Baltistan and Azad Jammu & Kashmir. The Program aims to provide 25% of the loans to women entrepreneurs.

Loans provided through Kamyab Jawan Program are segregated in two tiers: Tier 1 loans fall in the range of Rs. 100,000 to Rs. 500,000, with Debt: Equity 90:10 and 6% markup to borrower, and, Tier 2 loans are from Rs. 500,000 to Rs. 5 Million, with Debt: Equity 80:20 and 8% markup to borrower. Both loans are for a period of upto 8 years with a grace period of 1 year.

Application forms are available both in branches and dedicated websites of National Bank of Pakistan, Bank of Punjab and Bank of Khyber.

## 5. EXECUTIVE SUMMARY

This pre-feasibility is about setting up a dairy farm in which cows are kept primarily for milk production in semi-conventional open shed housing system with modern machine milk collection system and cow comfort through ventilators and water sprinklers. The cows are fed nutritionally balanced Total Mixed Ration (TMR) at 3% of live body weight. Breeding plan would be implemented through Artificial Insemination method to gain optimum milk yields in lactation cycle of average 300 days. Successful dairy farming would involve recommended best husbandry practices for housing, breeding, feeding, watering, disease control and hygienic production of milk on farm.

A dairy farm with 15 cows, preferably jersey or crossbred cows, needs a total investment estimated at Rs. 5.98 million out of which the capital cost of the project is Rs.5.60 million with working capital of Rs. 0.38 million. It is assumed that starting from 15 cows in first year of project, dairy herd would be increased to approximately 70 cows by implementing its own heifer management program till 10<sup>th</sup> year of business, keeping 2% mortality rate and 15% culling for adult cows.

The Internal Rate of Return (IRR), payback period and Net Present Value (NPV) of the project are estimated to be 39%, 3.76 years and Rs. 22.32 million respectively. The farm will provide employment opportunity to 03 individuals. The legal status of the project is proposed as sole proprietorship.

## 6. BRIEF DESCRIPTION OF PROJECT & PRODUCT

The proposed dairy farm would be established on leased land with purpose built shed constructed on conventional housing system. The farm would start the operations with 15 pregnant cows. After calving, each cow would produce average 25 litres of milk daily through out the lactation cycle of 300 days. The purchase price of cow with these production parameters is Rs. 300,000/ cow. Total milk production of 97,500 liters would be obtained by the end of first year. The culling of non-productive cows would be done at the rate of 15% per annum. Newborn suckling calves would be fed on milk replacer. The breeding of animals would be planned through effective 'Artificial Insemination (AI)' method. Female calves would be retained at farm and given special attention and raised as heifers. Male calves would be sold in first month of age to interested farmers for calf fattening purpose. The milk will be primarily sold to bulk buyers at the rate of average Rs.70 per liter. The farm will also offer milk sale to domestic individual consumers.

## 7. CRITICAL FACTORS

- Background knowledge and related experience of the entrepreneur in dairy farm operations.
- Application of good husbandry practices such as timely feeding, watering and vaccination to ensure animal's health, cow comfort and disease-free environment.
- Awareness about the supply and demand of milk in the market as demand of milk is relatively higher in summer as compared to winter season.
- Efficient marketing of the project and bulk supply to wholesalers.
- It is important to note that the production efficiency of dairy farm depend on the genetic worth of dairy cows, timely AI breeding with genetically superior semen, feeding of high quality dairy ration and thorough culling of non-productive cows along with focused on disease and health management of herd.

## 8. INSTALLED & OPERATIONAL CAPACITIES

In the proposed study, initially, 15 cows of preferably Jersey breed or cross bred of high genetic worth are recommended to obtain optimum milk production in first year of project. It is assumed that on average, 80% cows would be in lactation (Wet status) and 20% would be in dry status on farm. Heifers born at farm would be given special attention so that these could build future milking herd of farm; hence the number of animals would be 70 at 10<sup>th</sup> year of project. The male calves would be sold in first month of age. The farm will have the capacity to sale 97,500 liters of milk, primarily direct to consumers and then milk contractors and processors in its first year of operation.

## 9. GEOGRAPHICAL POTENTIAL FOR INVESTMENT

Dairy farming is a viable business proposition for both rural and peri-urban areas of Pakistan. There is almost equal demand for milk in rural and peri urban areas around the major cities such as Lahore, Faisalabad, Jhang, Sahiwal, Pakpattan, Jehlum, Peshawar, Charsadda, D.I. Khan, Quetta, Zhob, Lasbela, Karachi, Hyderabad, Sakkar etc. across the country; hence, from the demand point of view, the said project offers good investment opportunities for small scale investment in all provinces of country.

## 10. POTENTIAL TARGET MARKETS

Apart from Lahore, Sialkot, Kasur, Gujranwala, Bahawalpur, Okara, Dadu, Lasbela, D I. Khan etc., dairy farming in rural and peri-urban locations around all major is primary markets. Following are some of the target clients for a dairy farmer;

- Domestic consumers
- Milk contractors and suppliers
- Milk collection and processing companies
- Dairy products manufacturing companies

## 11. DAIRY PRODUCTION PROCESS

- Selection of good and preferably purebred local dairy breeds such as Sahiwal, Red Sindhi and Cholistani or exotic breeds such as Jersey cows. Crossbred cows (cross of local cow breeds with semen of exotic breeds e.g. Holstein Friesian and Jersey) may also be considered.
- Selection of genetically superior cows with excellent body condition and udder health: average daily milk production of 25 liters or above for cows in 2<sup>nd</sup> or 3<sup>rd</sup> lactation, essentially with no disease history.
- Housing: Good housing leads to good management practices and ultimately optimum production. Generally, housing should be;
  - i. Less expensive
  - ii. Well ventilated, comfortable and dry with hygienic environment
  - iii. Easy drainage and removal of dung urine and waste material
  - iv. Protective from extreme environmental conditions
  - v. Maximum sun exposure: axis of length to be east to west
  - vi. Availability of feed and water for 24 hours
  - vii. Planed so that future expansion may be possible when required
- Feeding: The lactating cows are fed 1 kg of Dry Matter (DM) feed per 1.75 litres of milk produced. The ration allows nutritionally balanced feed in 24 hours. It includes dry matter with 60% concentrate and 40% roughages containing 16% Crude Protein (CP) and energy to increase animal productivity. It is better to use

Total Mixed Ration (TMR) for feeding the cows. Additionally, urea molasses blocks and salt blocks can help in better milk production. New born calves should be fed colostrum for first three days and milk replacer @ 8-10% of body weight for first three months of age. After that, TMR should be added to its feeding plan.

- Watering: Supply of clean drinking water in clean troughs i.e. 50 to 80 liters of water consumption/adult animal/day round the clock maintains the milk production capacity of the animal.
- Breeding: Efficient and timely Artificial Insemination (AI) of good genetic worth is a key to success in good breeding programs of herd. Timely detection of heat in cows should be given special attention to attain efficient breeding efficiency in herd. Calf care and heifer management is very important in maintaining dairy farm production. The proposed farmer will raise female calves as future breeding heifers which will replace culled dairy animals. The first generation (F1) will be capable of breeding at age of 14 months; hence producing milk at about 23-24 months of age.
- Calving: Pregnant cows should be given special attention in third trimester of pregnancy and should be separated in pregnancy pens if possible. Veterinary assistance should be sought out in case of emergency. Calf care and heifer management is very important in maintaining dairy farm production.
- Milking: Lactation period is the period during which animals yield milk after calving. The animals producing milk are called 'Wet Animals'. Generally standard lactation period is taken as  $300 \pm 5$  days. This pre-feasibility study has taken 80% of the total number of animals as wet cows. The calving interval (interval between two calving) in cows is 12-14 months. The average daily milk yield of a cow is 25 litres.
- Udder health: Hygienic and clean milking twice a day (morning/ evening) lowers the chances of mastitis as udder health and hygiene is most important in dairy animals.
- Proper storage of milk should be done preferably at temperature of  $4^{\circ}\text{C}$ .
- Disease management: De-worming for endo-parasitic infestations is necessary in calves born at farm. Timely vaccination against infectious diseases should be done as a prophylactic measure. At a well managed farm, mortality in adult cows, heifers and new born calves should not exceed 2%, 3% and 5% per annum respectively. Sick animals should be separated from healthy ones and kept in quarantine.



- Following is a tentative vaccination schedule to be essentially followed at dairy farm;

**Table 1: Tentative Vaccination Schedule**

Disease	Vaccine	Time for vaccination	Dose/ Administration
Foot & Mouth Disease (FMD)	FMD (VRI)	February/March & September/October	5 ml sub cut.
Black Quarter	BQ	March/April	5 ml sub cut.
Haemorrhagic Septicemia (HS)	HS (VRI)	May/June & November/December	5 ml / 300 kg body wt sub cut.
Anthrax	Anthrax	August	1 ml sub cut.
Brucella Abortus	BA	Once in life for heifers (4-12 months of age)	1ml sub cut.

(VRI: Veterinary Research Institute, Lahore)

- Record keeping: The animals should be ear-tagged having information of animal such as breed, age, date of birth/ purchase, number of lactations, vaccination etc. The records for daily milk yields, weight, Artificial Inseminations (AI), calving, vaccination and medication etc. are also important.
- Culling: Good productive animals should be selected and uneconomical animals should be culled. Low yielding culled animals may be sold in the regular livestock market. On an average, cows are productive for 7 to 8 years. The culling rate of 15% per annum in the total herd is desirable for a successful dairy farm.
- Regular technical assistance from the livestock professionals and experts.

Returns on the scheme and its profitability are highly dependent on the efficiency of above mentioned factors. In case dairy farm is not able to attain its target milk production or implement effective husbandry practices, it will not be able to cover the potential market and recover payments; hence, cost of operating the business will increase.

## 12. PROJECT COST SUMMARY

A detailed financial model has been developed to analyze the commercial viability of dairy farm project. Various cost and revenue related assumptions along with results of the analysis are outlined in this section. The projected Income Statement, Cash Flow Statement and Balance Sheet are attached as annexure.

### 12.1. Project Economics

The following table shows Internal Rate of Return (IRR), payback period and Net Present Value (NPV) of the proposed project;

**Table 2: Project Economics**

Description	Details
Internal Rate of Return (IRR)	39%
Payback Period (Year)	3.76
Net Present value (NPV)	Rs. 22,318,275

### 12.2. Project Financing

Following table provides details of the equity required and variables related to bank financing;

**Table 3: Project Financing**

Description	Details
Total Equity (20%)	Rs. 1,196,220
Bank Loan (80%)	Rs. 4,784,881
Markup to the Borrower (%age/annum)	8%
Tenure of the Loan (Years)	8
Grace Period (Years)	1

### 12.3. Project Cost

Following table shows the operational requirements identified for the proposed business;

**Table 4: Capital Investment for the Project**

Capital Investment	Amount (Rs.)
Cost of Cows	4,500,000
Machinery & equipment	951,200
Furniture and fixture	39,360
Office Equipment	5,000
Pre-operating costs	105,000
<b>Total Capital Costs</b>	<b>5,600,560</b>
Raw material inventory	237,982
Cash in hand	119,903
Upfront farm rent	22,656
<b>Total Working Capital</b>	<b>380,541</b>
<b>Total Project Cost</b>	<b>5,981,101</b>

### 12.4. Space Requirement

Following table shows calculations for project space requirements, the area has been calculated to accommodate 15 animals each from wet cows, dry cows and calves;

**Table 5: Space Requirement in Year 1**

Description	Area per animal	Total Required Area Sq.ft. (year 1-4)
Shed space for wet cows	80	1,200
Open paddock for wet cows	160	2,400
Shed space for dry cows	80	1,200
Open paddock for dry cows	160	2,400
Shed space for calves	40	600
Open paddock for calves	80	1,200
Stores for fodder, concentrate & machine		400
Store for chillers, milk storage and utensils		144
Silage Bunker		513
Rooms for workers		90
Servant washroom		48
<b>Total space requirements</b>		<b>10,195</b>

Farm space would be increased as the number of animals increase in herd. Dairy farm building is obtained on rent and more farm area would be included in shed is constructed keeping in view the expected expansion in the start of year 4. The total farm area required for 10 years is approximately 4.2 kanals (around 0.5 acre) which would be acquired on rent at approximately Rs. 22,650 per month.

## 12.5. Machinery and Office Equipment

Following table provides list of machinery and office equipment required for the proposed dairy farm;

**Table 6: List of Machinery and Office Equipment**

Description	Unit Rate (Rs.)	No.	Cost (Rs.)
Calf feeder	2,000	4	8,000
Calf Cages	18,000	5	90,000
Cooling System* (4 cone fans, water pads, water pumps & water lines)	50,000	2	100,000
Cluster Milking Line	150,000	3	450,000
Chiller for milk (500 litres)	200,000	1	200,000
Energy Savers	400	8	3,200
Cell phone	5,000	1	5,000
Miscellaneous	100,000	Lump sum	100,000
<b>Total</b>			<b>956,200</b>

## 12.6. Furniture and Fixture

Following table provides list of furniture and fixture required for the proposed dairy farm;

**Table 7: List of Furniture**

Description	Unit Rate (Rs.)	No.	Cost (Rs.)
Tables	5,000	1	5,000
Fans (75 W)	4,000	1	4,000
*Energy Savers	200	1.8 (may be rounded off to 2)	360
Miscellaneous	30,000	Lump sum	30,000
<b>Total</b>			<b>39,360</b>

\*Figure rounded off to near decimal.

## 12.7. Raw Material Requirement

Following tables show raw material requirement to run the proposed dairy farm in first year of production;

**Table 8: Daily Feeding Requirements for One Adult Cow\***

Description	Requirement (Kg/ Cow/ Day)	Rate (Rs./ Kg)	Amount (Rs.) per day
TMR Allowance (@ 3 % of live body weight)	15	31	465
<b>Total</b>			<b>465</b>

\*Avg. weight of cow is assumed to be 500 kgs with 25 liters of daily milk production for 300 days lactation period

**Table 9: Total Feeding Requirements for One Suckling Calf\* (0-3 Months age)**

Description	Days (No.)	Requirement (Litres/ Calf/ Day)	Rate (Rs./ Kg)	Amount (Rs.)
Milk Replacer (@8-10 % of body weight)	90	4	50	18,000
<b>Total</b>				<b>18,000</b>

\*Avg. weight of healthy calf is assumed to be 45 kgs.

**Table 10: Daily Feeding Requirements of One Heifer\*(3-12 months' age)**

Description	Requirement (Kgs/ Heifer/ Day)	Rate (Rs./ Kg)	Amount (Rs.)
TMR Allowance (@ 3 % of live body weight)	8.25	31	255.75
<b>Total</b>			<b>255.75</b>

\*Avg. weight of younger heifer is assumed to be 275 kgs.

**Table 11: Total Cost of AI and Vaccination in Year 1**

Description	Animals (No.)	Rate (Rs./year)	Amount (Rs. per year)
Artificial Insemination (AI) Cows	13*	5,000	65,000
Vaccination and medication	20**	1,000	20,000
<b>Total</b>			<b>85,000</b>

\*Out of 15 cows, two are culled, hence cows available for AI are 13

\*\*13 cows and 7 new born calves would make a herd of 20 animals on farm for vaccination and medication.

**Table12: Total Costs in Year 1**

Description	Cost (Rs.)*
Feeding of Adult Cows	2,206,425
Feeding of Female Calves (Age 0-3 month)	128,250
Feeding of Heifers (Age 3-12 months)	501,110
<b>Total Feeding Cost</b>	<b>2,835,785</b>
AI Charges of Adult Cows	65,000
Vaccination/ Medication Charges	20,000
<b>Total AI/ Vacc. Cost</b>	<b>85,000</b>
<b>Total</b>	<b>2,920,785</b>

\*Feed costs are rounded off to near decimal point for every animal for 365 days of feeding

## 12.8. Human Resource Requirement

**Table 13: Human Resource Requirement**

Description	No.	Monthly Salary (Rs.)	Annual Salary (Rs.)
Owner/ Farm supervisor	01	30,000	360,000
Farm workers	02	17,500	420,000
<b>Total</b>	<b>03</b>		<b>780,000</b>

Two trained farm worker will be required to assist the owner for husbandry practices and farm operations.

## 12.9. Revenue Generation

**Table 14: Revenue Generation**

Description	Units	Annual Production**	Rate (Rs./Unit)	Annual Revenue in Year 1 (Rs.)
Milk sales (farm gate)	Liters	97,500	70	6,825,000
Sale of male calves**	Calf	6.63 $\simeq$ 7	10,000	66,263
Sale of culled cows**	Cow	2.25 $\simeq$ 2	150,000	337,500
<b>Total</b>				<b>7,228,763</b>

\*\* Note: number of animals produced per year are rounded off to near decimal point for every culled or sold animal while actual calculations. Figures in this table may vary from the income statement due to the rounding effect.

### 12.10. Other Costs

An essential cost to be borne on farm is electricity cost which is assumed to be Rs. 2,000 per month for farmer's residential purpose. The electricity cost for farm machinery, milking machines and chillers is Rs. 39,903 per month.

The maintenance cost for machine and equipment is Rs. 10,000 per month.

The communication expense is Rs. 3,000 per month.

## 13. CONTACTS OF SUPPLIERS AND CONSULTANTS

**Table 15: List of Suppliers and Consultants**

Consultants	
Dean, Faculty of Animal Husbandry University of Agriculture, Faisalabad Ph: 041-9920161-70	Director General (Extension) Livestock & Dairy Development Department (L&DD), Govt. Of Punjab, 16-Cooper Road, Lahore. Ph: 042-99201117
Dean, Faculty of Animal Production University of Veterinary & Animal Sciences, Lahore Ph: 042-99211374	Dr. Nasir Javed Consultant Lead Foundation, West wood Colony, Lahore Cell: 0300-8432595
Feed Suppliers	AI / Semen Suppliers
ICI Pakistan Cattle Feed 63-Mozang Road Lahore Ph: 042-36370042	AI - Haiwan Sires, 5-Km, Pakpattan Road, Sahiwal Ph: 040-4501271-72
Doctor's Dairy Feeds 203/7, UC-3, Cattle colony, Bin Qasim, Karachi. Ph: 021-5081923-27	Altaf & Company, Altaf & Co Plaza, 16/1, Out Fall Road, Lahore. Ph: 042-35763411-4
Hi-Tech Feeds Pvt. Ltd. 1-A, Shadman Chowk, Jail Road, Lahore. Ph: 042-37564503	Ghazi Brothers B-35 KDA Scheme No 1, Mian Muhammad Shah Road, Karachi. Ph: 021-4543579
Anmol Vanda c/o Livestock and Dairy Development Department, Govt. of Punjab, 16-Cooper Road, Lahore Free Landline: 0800-78685, 0800-78686	World Wire Sires by Maxim International Pvt. Ltd. 69-A, Sector-XX, Khayaban-e-Iqbal, DHA, Lahore. Ph: 042-35693993
Alhalal Wanda Al-Halal Livestock Concern Company Super High Way Jahania	Ghazi Brothers B-35 KDA Scheme no 1, Mian Muhammad Shah Road, Karachi.

Ph: 065-2002373	Ph: 021-4543579
<b>Machinery Suppliers</b>	<b>Milk Contractors/ Processors</b>
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Dairy Solution Pvt. Ltd. 177/B- Johar Town, Lahore Ph: +92-42-35169450 +92-42-35169451 Fax +92-042-35169449	Gourmet Pvt. Ltd. 73-F, Quid-e- Azam Industrial estate, Kot lakhpat Lahore Ph: 0423-5121052
Cattle Kit Pvt. Ltd. Pakistan 104-A, Punjab Government Servants Housing Society Near Mohlan Waal, Lahore Ph: +92 (042) 35978500-3 Email: <a href="mailto:Info@cattlekit.com.pk">Info@cattlekit.com.pk</a> Web: <a href="http://www.cattlekit.com.pk">www.cattlekit.com.pk</a>	Engro Foods Pvt. Limited 5th, 6th Floor, Harbor Front Building Marine Drive, Block 4, Clifton, Karachi. Ph: +92 21 3529-6000 (10 lines)
<b>Livestock Mandies</b>	
The animals may be procured from local livestock breeders and livestock mandies scheduled in different districts such as Pattoki, Okara, Bahawalnagar, Lodhran, Vehari, Khanewal, Arifwala, Pakpattan etc. as per scheduled by Livestock and Dairy Development Department, Govt. of The Punjab Lahore. Free Landline: 0800-78685, 0800-78686	



SMEDA



## 14. ANNEXURE

### 14.1. Income Statement

Statement Summaries										SMEDA
Income Statement										
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Rs. in actuals Year 10
Revenue	7,228,763	6,590,202	9,329,887	12,162,442	16,155,318	21,220,884	28,158,090	36,664,872	45,055,170	60,186,993
Cost of goods sold	3,939,616	4,867,512	6,097,309	7,847,381	10,659,798	13,917,390	18,476,997	24,095,337	31,808,385	43,373,945
Gross Profit	3,289,146	1,722,689	3,232,577	4,315,061	5,495,520	7,303,494	9,681,092	12,569,535	13,246,785	16,813,048
<i>General administration &amp; selling expenses</i>										
Administration expense	360,000	395,050	433,513	475,720	522,037	572,863	628,638	689,843	757,007	830,710
Rental expense	271,874	299,062	328,968	361,864	398,051	875,712	963,283	1,059,612	1,165,573	1,282,130
Utilities expense	24,000	26,400	29,040	31,944	35,138	38,652	42,517	46,769	51,446	56,591
Travelling & Comm. expense (phone, fax, etc.)	36,000	39,600	43,560	47,916	52,708	57,978	63,776	70,154	77,169	84,886
Office vehicles running expense	-	-	-	-	-	-	-	-	-	-
Office expenses (stationary, etc.)	-	-	-	-	-	-	-	-	-	-
Promotional expense	-	-	-	-	-	-	-	-	-	-
Insurance expense	-	-	-	-	-	-	-	-	-	-
Professional fees (legal, audit, etc.)	-	-	-	-	-	-	-	-	-	-
Depreciation expense	99,556	99,556	99,556	99,556	99,556	99,556	99,556	99,556	99,556	99,556
Amortization expense	21,000	21,000	21,000	21,000	21,000	-	-	-	-	-
Property tax expense	-	-	-	-	-	-	-	-	-	-
Miscellaneous expense	-	-	-	-	-	-	-	-	-	-
Subtotal	812,430	880,668	955,636	1,038,001	1,128,490	1,644,762	1,797,771	1,965,934	2,150,751	2,353,873
Operating Income	2,476,716	842,022	2,276,941	3,277,061	4,367,030	5,658,732	7,883,321	10,603,601	11,096,033	14,459,175
Other income	-	-	-	-	-	-	-	-	-	-
Gain / (loss) on sale of assets	-	-	-	-	-	-	-	-	-	-
Earnings Before Interest & Taxes	2,476,716	842,022	2,276,941	3,277,061	4,367,030	5,658,732	7,883,321	10,603,601	11,096,033	14,459,175
Interest expense	366,709	329,774	289,774	246,453	199,538	148,728	93,701	34,106	-	-
Earnings Before Tax	2,110,007	512,248	1,987,167	3,030,607	4,167,492	5,510,004	7,789,621	10,569,495	11,096,033	14,459,175
Tax	206,501	5,612	188,075	377,652	670,247	1,073,001	1,496,367	2,469,322	2,653,611	3,830,710
<b>NET PROFIT/(LOSS) AFTER TAX</b>	<b>1,903,506</b>	<b>506,635</b>	<b>1,799,092</b>	<b>2,652,956</b>	<b>3,497,245</b>	<b>4,437,003</b>	<b>6,293,254</b>	<b>8,100,172</b>	<b>8,442,422</b>	<b>10,628,464</b>
Balance brought forward		951,753	1,458,388	3,257,481	5,910,436	9,407,681	13,844,684	20,137,939	28,238,111	36,680,533
Total profit available for appropriation	1,903,506	1,458,388	3,257,481	5,910,436	9,407,681	13,844,684	20,137,939	28,238,111	36,680,533	47,308,997
Dividend	951,753	-	-	-	-	-	-	-	-	-
Balance carried forward	951,753	1,458,388	3,257,481	5,910,436	9,407,681	13,844,684	20,137,939	28,238,111	36,680,533	47,308,997

## 14.2. Balance Sheet

Statement Summaries											SMED
Balance Sheet											
	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Rs. in actual Year 10
<b>Assets</b>											
<b>Current assets</b>											
Cash & Bank	119,903	203,522	297,894	1,299,511	2,982,044	5,261,797	8,079,151	12,352,841	17,688,221	23,402,350	40,865,99
Accounts receivable	-	560,959	498,390	713,604	949,094	1,258,798	1,652,173	2,197,390	2,853,715	3,506,427	4,685,86
Finished goods inventory	-	-	-	-	-	-	-	-	-	-	-
Equipment spare part inventory	-	-	-	-	-	-	-	-	-	-	-
Raw material inventory	237,982	334,987	478,551	701,248	1,052,677	1,559,551	2,340,735	3,365,498	4,989,758	7,453,948	-
Pre-paid annual land lease	-	-	-	-	-	-	-	-	-	-	-
Pre-paid building rent	22,656	24,922	27,414	30,155	33,171	36,488	40,137	44,150	48,566	53,422	-
Pre-paid lease interest	-	-	-	-	-	-	-	-	-	-	-
Pre-paid insurance	-	-	-	-	-	-	-	-	-	-	-
<b>Total Current Assets</b>	<b>380,541</b>	<b>1,124,390</b>	<b>1,302,250</b>	<b>2,744,519</b>	<b>5,016,986</b>	<b>8,116,634</b>	<b>12,112,196</b>	<b>17,959,879</b>	<b>25,580,259</b>	<b>34,416,148</b>	<b>45,551.86</b>
<b>Fixed assets</b>											
Land	-	-	-	-	-	-	-	-	-	-	-
Building/Infrastructure	-	-	-	-	-	-	-	-	-	-	-
Animals	4,500,000	4,600,000	5,670,000	7,111,125	9,666,169	12,823,591	16,783,103	21,843,559	27,860,588	36,197,658	47,237.94
Machinery & equipment	951,200	856,080	760,960	665,840	570,720	475,600	380,480	285,360	190,240	95,120	-
Furniture & fixtures	39,360	35,424	31,488	27,552	23,616	19,680	15,744	11,808	7,872	3,936	-
Office vehicles	-	-	-	-	-	-	-	-	-	-	-
Office equipment	5,000	4,500	4,000	3,500	3,000	2,500	2,000	1,500	1,000	500	-
<b>Total Fixed Assets</b>	<b>5,495,560</b>	<b>5,496,004</b>	<b>6,466,448</b>	<b>7,808,017</b>	<b>10,263,505</b>	<b>13,321,371</b>	<b>17,181,327</b>	<b>22,142,227</b>	<b>28,059,700</b>	<b>36,297,214</b>	<b>47,237.94</b>
<b>Intangible assets</b>											
Pre-operation costs	105,000	84,000	63,000	42,000	21,000	-	-	-	-	-	-
Legal, licensing, & training costs	-	-	-	-	-	-	-	-	-	-	-
<b>Total Intangible Assets</b>	<b>105,000</b>	<b>84,000</b>	<b>63,000</b>	<b>42,000</b>	<b>21,000</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>TOTAL ASSETS</b>	<b>5,981,101</b>	<b>6,704,394</b>	<b>7,831,698</b>	<b>10,594,536</b>	<b>15,301,490</b>	<b>21,438,005</b>	<b>29,293,522</b>	<b>40,102,106</b>	<b>53,639,960</b>	<b>70,713,362</b>	<b>92,789.80</b>
<b>Liabilities &amp; Shareholders' Equity</b>											
<b>Current liabilities</b>											
Accounts payable	-	116,539	149,141	193,697	257,906	351,924	473,906	646,787	845,040	1,138,950	1,546,64
Export re-finance facility	-	-	-	-	-	-	-	-	-	-	-
Short term debt	-	-	-	-	-	-	-	-	-	-	-
Other liabilities	-	-	-	-	-	-	-	-	-	-	-
<b>Total Current Liabilities</b>	<b>-</b>	<b>116,539</b>	<b>149,141</b>	<b>193,697</b>	<b>257,906</b>	<b>351,924</b>	<b>473,906</b>	<b>646,787</b>	<b>845,040</b>	<b>1,138,950</b>	<b>1,546,64</b>
<b>Other liabilities</b>											
Lease payable	-	-	-	-	-	-	-	-	-	-	-
Deferred tax	-	-	-	-	-	-	-	-	-	-	-
Long term debt	4,784,881	4,339,882	3,857,948	3,336,013	2,770,759	2,158,589	1,495,609	777,601	-	-	-
<b>Total Long Term Liabilities</b>	<b>4,784,881</b>	<b>4,339,882</b>	<b>3,857,948</b>	<b>3,336,013</b>	<b>2,770,759</b>	<b>2,158,589</b>	<b>1,495,609</b>	<b>777,601</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>Shareholders' equity</b>											
Paid-up capital	1,196,220	1,196,220	1,196,220	1,196,220	1,196,220	1,196,220	1,196,220	1,196,220	1,196,220	1,196,220	1,196,22
Gain / Loss on Net value of Animals	-	100,000	1,170,000	2,611,125	5,166,169	8,323,591	12,283,103	17,343,559	23,360,588	31,697,658	42,737.94
Retained earnings	-	951,753	1,458,388	3,257,481	5,910,436	9,407,681	13,844,684	20,137,939	28,238,111	36,680,533	47,308.99
<b>Total Equity</b>	<b>1,196,220</b>	<b>2,247,973</b>	<b>3,824,609</b>	<b>7,064,826</b>	<b>12,272,825</b>	<b>18,927,492</b>	<b>27,324,007</b>	<b>38,677,718</b>	<b>52,794,919</b>	<b>69,574,412</b>	<b>91,243.16</b>
<b>TOTAL CAPITAL AND LIABILITIES</b>	<b>5,981,101</b>	<b>6,704,394</b>	<b>7,831,698</b>	<b>10,594,536</b>	<b>15,301,490</b>	<b>21,438,005</b>	<b>29,293,522</b>	<b>40,102,106</b>	<b>53,639,960</b>	<b>70,713,362</b>	<b>92,789.80</b>

Note: Total assets value will differ from project cost due to first installment of leases paid at the start of year 0

### 14.3. Cash Flow Statement

Statement Summaries											SMEDA
Cash Flow Statement											
	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Rs. in actuals Year 10
<b>Operating activities</b>											
Net profit	-	1,903,506	506,635	1,799,092	2,652,956	3,497,245	4,437,003	6,293,254	8,100,172	8,442,422	10,628,464
Add: depreciation expense	-	99,556	99,556	99,556	99,556	99,556	99,556	99,556	99,556	99,556	99,556
amortization expense	-	21,000	21,000	21,000	21,000	21,000	21,000	-	-	-	-
Deferred income tax	-	-	-	-	-	-	-	-	-	-	-
Accounts receivable	-	(560,959)	62,568	(215,214)	(235,489)	(309,704)	(393,374)	(545,217)	(656,326)	(652,711)	(1,179,434)
Finished good inventory	-	-	-	-	-	-	-	-	-	-	-
Equipment inventory	-	-	-	-	-	-	-	-	-	-	-
Raw material inventory	(237,982)	(97,005)	(143,564)	(222,698)	(351,428)	(506,874)	(781,184)	(1,024,763)	(1,624,260)	(2,464,191)	7,453,948
Pre-paid building rent	(22,656)	(2,266)	(2,492)	(2,741)	(3,016)	(3,317)	(3,649)	(4,014)	(4,415)	(4,857)	53,422
Pre-paid lease interest	-	-	-	-	-	-	-	-	-	-	-
Advance insurance premium	-	-	-	-	-	-	-	-	-	-	-
Accounts payable	-	116,539	32,602	44,555	64,209	94,018	121,982	172,881	198,253	293,910	407,692
Other liabilities	-	-	-	-	-	-	-	-	-	-	-
Cash provided by operations	(260,638)	1,480,372	576,306	1,523,551	2,247,788	2,891,923	3,480,334	4,991,697	6,112,981	5,714,130	17,463,648
<b>Financing activities</b>											
Change in long term debt	4,784,881	(444,999)	(481,934)	(521,934)	(565,254)	(612,170)	(662,980)	(718,007)	(777,601)	-	-
Change in short term debt	-	-	-	-	-	-	-	-	-	-	-
Change in export re-finance facility	-	-	-	-	-	-	-	-	-	-	-
Add: land lease expense	-	-	-	-	-	-	-	-	-	-	-
Land lease payment	-	-	-	-	-	-	-	-	-	-	-
Change in lease financing	-	-	-	-	-	-	-	-	-	-	-
Issuance of shares	1,196,220	-	-	-	-	-	-	-	-	-	-
Purchase of (treasury) shares	-	-	-	-	-	-	-	-	-	-	-
Cash provided by / (used for) financing	5,981,101	(444,999)	(481,934)	(521,934)	(565,254)	(612,170)	(662,980)	(718,007)	(777,601)	-	-
<b>Investing activities</b>											
Capital expenditure	(5,600,560)	-	-	-	-	-	-	-	-	-	-
Acquisitions	-	-	-	-	-	-	-	-	-	-	-
Cash (used for) / provided by investing :	(5,600,560)	-	-	-	-	-	-	-	-	-	-
<b>NET CASH</b>	<b>119,903</b>	<b>1,035,373</b>	<b>94,372</b>	<b>1,001,617</b>	<b>1,682,533</b>	<b>2,279,753</b>	<b>2,817,354</b>	<b>4,273,690</b>	<b>5,335,380</b>	<b>5,714,130</b>	<b>17,463,648</b>
Cash balance brought forward		119,903	203,522	297,894	1,299,511	2,982,044	5,261,797	8,079,151	12,352,841	17,688,221	23,402,350
Cash available for appropriation	119,903	1,155,275	297,894	1,299,511	2,982,044	5,261,797	8,079,151	12,352,841	17,688,221	23,402,350	40,865,999
Dividend	-	951,753	-	-	-	-	-	-	-	-	-
Cash carried forward	119,903	203,522	297,894	1,299,511	2,982,044	5,261,797	8,079,151	12,352,841	17,688,221	23,402,350	40,865,999

## 14.4. Useful Project Management Tips

### Technology

- **List of Machinery & Equipment (As per Section 12.5)**
- **Animal Selection:** Selection of disease free animals with good breed characteristics, body conditions and health.
- **Feed, Vaccination, Medication, AI Services:** Should be procured from reputed and reliable sources.
- **Energy Requirement:** Should not be overestimated or installed in excess and alternate source of energy for critical operations be arranged in advance
- **Machinery Suppliers:** Should be asked for after sales services under the contract with the machinery suppliers
- **Quality Assurance & Standards:** Whatever means required for animal production quality standards need to be defined on the ear tags and a system of record keeping to check them to improve credibility

### Marketing

- **Product Development:** Expert's help may be engaged for marketing of each batch of animal
- **Ads & P.O.S. Promotion:** Business promotion and dissemination through banners and launch events is highly recommended. Product brochures from good quality service providers
- **Sales & Distribution Network:** Expert's advise and distribution agreements are required with.
- **Price - Bulk Discounts, Cost plus Introductory Discounts:** Price should never be allowed to compromise quality. Price during introductory phase may be lower and used as promotional tool. Product cost estimates should be carefully documented before price setting. Government controlled prices shall be displayed.

### Human Resources

- **List of Human Resource (As per Section 12.8)**
- **Adequacy & Competencies:** Skilled and experienced staff should be considered an investment even to the extent of offering share in business profit.

- **Performance Based Remuneration:** Attempt to manage human resource cost should be focused through performance measurement and performance based compensation.
- **Training & Skill Development:** Encouraging training and skill of self & employees through experts and exposure of best practices is route to success. Least cost options for Training and Skill Development (T&SD) may be linked with compensation benefits and awards.

## 14.5. Useful Links

- Prime Minister's Office, [www.pmo.gov.pk](http://www.pmo.gov.pk)
- Government of Pakistan, [www.pakistan.gov.pk](http://www.pakistan.gov.pk)
- National Youth Development Program. [www.kamyabjawan.gov.pk](http://www.kamyabjawan.gov.pk)
- Ministry of Industries & Production, [www.moip.gov.pk](http://www.moip.gov.pk)
- Ministry of National Food Security & Research, [www.mnfsr.gov.pk](http://www.mnfsr.gov.pk)
- Ministry of Education, Training & Standards in Higher Education, [www.moptt.gov.pk](http://www.moptt.gov.pk)
- Government of Punjab, [www.punjab.gov.pk](http://www.punjab.gov.pk)
- Government of Sindh, [www.sindh.gov.pk](http://www.sindh.gov.pk)
- Government of Khyber Pakhtunkhwa, [www.khyberpakhtunkhwa.gov.pk](http://www.khyberpakhtunkhwa.gov.pk)
- Government of Balochistan, [www.balochistan.gov.pk](http://www.balochistan.gov.pk)
- Government of Gilgit Baltistan, [www.gilgitbaltistan.gov.pk](http://www.gilgitbaltistan.gov.pk)
- Government of Azad Jammu & Kashmir, [www.ajk.gov.pk](http://www.ajk.gov.pk)
- Trade Development Authority of Pakistan (TDAP), [www.tdap.gov.pk](http://www.tdap.gov.pk)
- Securities & Exchange Commission of Pakistan (SECP), [www.secp.gov.pk](http://www.secp.gov.pk)
- Federation of Pakistan Chambers of Commerce and Industry (FPCCI)  
[www.fpcci.com.pk](http://www.fpcci.com.pk)
- Punjab Board of Investment & Trade (PBIT), 23-Aikman Road, GOR-I, Lahore  
Tel. 042-99205201, [www.pbit.gov.pk](http://www.pbit.gov.pk)
- Sindh Board of Investment (SBI), 1st Floor, Tower B, Finance & Trade Center,  
Shahra-e-Faisal, Karachi, Tel. 021-99207512-4, [www.sbi.gov.pk](http://www.sbi.gov.pk)
- State Bank of Pakistan (SBP), [www.sbp.org.pk](http://www.sbp.org.pk)
- National Bank of Pakistan (NBP), [www.nbp.com.pk](http://www.nbp.com.pk)
- First Women Bank Limited (FWBL), [www.fwbl.com.pk](http://www.fwbl.com.pk)
- Pakistan Agricultural Research Council (PARC), Islamabad, Tel. 051-9203966  
[www.parc.gov.pk](http://www.parc.gov.pk)
- National Agricultural Research Centre (NARC), Islamabad, Tel. 051-9255061,  
[www.parc.gov.pk](http://www.parc.gov.pk)
- National Veterinary Laboratory, NARC, Islamabad Tel. 051-9255108
- Balochistan Agricultural Research Centre (BARC), Quetta, Tel: 081-9213286-7,  
[www.parc.gov.pk](http://www.parc.gov.pk)

- Southern-zone Agricultural Research Centre (SARC), Karachi, Tel: 021-99261661, 99261561, [www.parc.gov.pk](http://www.parc.gov.pk)
- Arid Zone Research Institute (AZRI), Bahawalpur, Tel: 0622-876833, [www.parc.gov.pk](http://www.parc.gov.pk)
- Punjab Livestock & Dairy Development Board (PLDDB), 11- Shami Road, Lahore Cantt. Tel. 042-36676821, [www.plddb.pk](http://www.plddb.pk)
- University of Agriculture, Faisalabad, [www.uaf.edu.pk](http://www.uaf.edu.pk)
- Lasbela University of Agriculture, Water & Marine Sciences, Lasbela, [www.luawms.edu.pk](http://www.luawms.edu.pk)
- Sindh Agriculture University, Tondojam, [www.sau.edu.pk](http://www.sau.edu.pk)
- Gomal College of Veterinary Sciences, Dera Ismail Khan, [www.gu.edu.pk](http://www.gu.edu.pk)
- KPK Agricultural University, Peshawar, [www.aup.edu.pk](http://www.aup.edu.pk)
- Pir Mehr Ali Shah Arid Agricultural University, Rawalpindi, [www.uaar.edu.pk](http://www.uaar.edu.pk)
- University College of Veterinary & Animal Sciences, Islamia University Bahawalpur (IUB), [www.iub.edu.pk](http://www.iub.edu.pk)
- University of Veterinary & Animal Sciences (UVAS), Out Fall Road, Lahore, [www.uvas.edu.pk](http://www.uvas.edu.pk)
- Bahauddin Zakariya University (BZU), Multan, [www.bzu.edu.pk](http://www.bzu.edu.pk)
- Nestle Sarsabz Training Institute, Renala Khurd, Okara c/o Nestle Lahore, Tel: 0423-111-637-853
- Animal Husbandry In-Service Training Institute (AHITI), Peshawar, Tel. 091-2960109, 9210309
- Veterinary Research Institute (VRI), Ghazi Road, Lahore Cantt., Tel. 042-99220140
- AI - Haiwan Sires Training Institute, Jogi Chowk, Sahiwal, Tel. 040-4227196, 4221486, 061-6775708
- Altaf & Co Livestock Training Institute, Altaf & Co Plaza, 16/1, Out Fall Road, Lahore, Tel: 042-35763411-4, [www.altafandco.com](http://www.altafandco.com)
- Solve Agri Pak Ltd, F-6/2, Main Link Road, Model Town, Lahore, Tel: 042-35969602-3 [www.solveagripak.com](http://www.solveagripak.com)
- Dairy & Rural Development Foundation (DRDF), Lahore, [www.dairyproject.org.pk](http://www.dairyproject.org.pk)
- Agribusiness Support Fund (ASF), Lahore, [www.asf.org.pk](http://www.asf.org.pk)
- Directorate of Livestock Farms, L&DD, Lahore, Tel: 042-99201126-7
- Directorate of Small Holder Dairy Development, Gujranwala, Tel: 055-9200410-11, 9200194
- Buffalo Research Institute Bhunikey, District Pattoki, Tel: 049-4421887, 4420072
- Livestock Experiment Station (LES), Dera Chahl Lahore, L&DD, Punjab, Tel: 042-99239818, 99239819
- Research Centre for Conservation of Sahiwal Cattle (RCCSC), Jhang, Tel: 047-9200329, 9200371, [www.rccsc.com.pk](http://www.rccsc.com.pk)

- Directorate of Livestock Training Centre (LSTC), Bahadurnagar, Okara, Tel: 044-2661393
- Livestock & Fisheries Department, Government of Sindh, [www.sindh.gov.pk](http://www.sindh.gov.pk)
- Agriculture & Livestock Department, Government of KPK, [www.khyberpakhtunkhwa.gov.pk](http://www.khyberpakhtunkhwa.gov.pk)
- Livestock & Dairy Development, Government of Balochistan, [www.balochistan.gov.pk](http://www.balochistan.gov.pk)

## 15. KEY ASSUMPTIONS

**Table 16: Key Assumptions**

Description	Details
Purchase Price of One cow (Rs.)	300,000
Daily milk production per cow (Litres)	25
Average lactation length of cow (days)	300
Milk sale price (Rs.)	70
Annual milk sale price growth rate (%)	10
Wet to dry cows ratio in herd	80:20
Capacity utilization (%)	100
Selling price of a culled cow (Rs.)	150,000
Selling price of male calf (Rs.)	10,000
Sale price of a low yielder cow (Rs.)	150,000
Mortality in calves (%/ annum)	5
Annual mortality rate in adult cows (%)	2
Annual culling rate (%)	15

**S M E D A**