



Krishi Vigyan Kendra, Borkhera, Kota (Agriculture University, Kota)

Dr. Mahendra Kumar Garg
Assoc.Prof. & PI, RKVY Dairy Project

0744-2326726 (O)
94142-57242 (M)

Economics of a commercial Dairy Farm cum Breeding Centre

OF Indigenous GIR/ SAHIWAL BREED COWS

PROJECT AT A GLANCE

1	Unit size	100 animals
2	Breed	Gir/Sahiwal cows
3	State	Rajasthan
4	Unit cost (Rs)	96,00,000
5	Bank loan (Rs)	81,60,000
6	Margin money (Rs)	14,40,000
7	Repayment period (yrs)	5
8	Interest rate (%)	12
9	BCR at 15% DF	1.50:1
10	IRR (%)	>50

A: INVESTMEN /COST:

S. No.	Items	Specifications	Phy. Units	Unit Cost (Rs./unit)	Total Cost (Rs.)
1	Cost of animals with Transportation cost	Gir/Sahiwal Breed cows will be purchased from Ajmer/Kota/Gujrat area	100	50000	50,00,000
2	Breed able Bulls-2 or AI kit with LN2 containers of 50 and 3 lt size.	Gir/Sahiwal Breed Bull or AI kit	2	50000	1,00,000
3	Cost of const. of shed Brick floore and Thatched roof (Sqm) for Cost of const. of store cum office	a Milch Animals 7x30m 2 Nos. b Calving Animals 3x6m 2 Nos. c Sick Animals 3x6m 1 Nos. d.Calf's <6 month 3x10m 2Nos e Calves >6 months 3x16m 2 Nos. f Bull House 3x4 m 2 Nos. a. Fodder store 5x10m 3 Nos b.. Chaffing House 5x10m 1 No c. Office cum store 7x10m 1 No.	420 Sqm 36 Sqm 18 Sqm 60 Sqm 96 Sqm 24 Sqm 654 Sqm 150 Sqm 50 Sqm 200 Sqm 70 Sqm	@ Rs. 2000 per Sqm @ Rs. 4000 per Sqm @ 8000/- sqm	13,08,000 8,00,000 5,60,000
4	Equipments/Machinery	a. Chaff cutter, cream separator, 500 LPH milk Pasteurizing unit with packing machine, Bulk milk cooler, milking pails, cans, khoa machine, mud pump, DG set etc b. Milking machine/Milk parlor of 10 cows c. HDPE Gobar Gas Plant 20 qmt	One each one one	1132000 400000 300000	11,32,000 4,00,000 3,00,000
	Total cost				96,00,000
6	Margin money (15% of total cost)				14,40,000
7	Bank loan (85 % of total cost)				81,60,000

LACTATION CHART:

SN	Particulars		I	II	III	IV	V
I	Lactation Days						
a)	First batch		17400	18000	17700	16800	17400
b)	Second batch		8100	9400	9800	9700	9600
	Total		25500	27400	27500	26500	27000
II	Dry days						
a)	First batch		4500	3900	4200	5100	4400
b)	Second batch		-	5200	4800	4900	5100
	Total		4500	9100	9000	9000	9500

CASH FLOW ANALYSIS :

SN	Particulars	I	II	Years III	IV	V
I	Capital cost (Rs.)	96,00,000/-				
2	RECURRING COST					
	Feeding during lactation & dry period					
a	Green fodder @ 20 kg/day	600000	730000 0	730000	710000	730000
b	Dry fodder @ 5 kg/day	600000	730000	730000	710000	730000
c	Concentrate@ 4 kg/day	2400000	292000 0	292000 0	2840000	2720000
	Feed Cost	3600000	438000 0	438000 0	4260000	4380000
d	Veterinary and other Exp.	180000	180000	180000	180000	180000
e	Insurance @ 6%	306000	260100	214200	168300	122400
f	Labor charges (7 + 1)	1020000	112200 0	123400 0	1357500	1493500
g	Interest	979200	783400	587500	391700	195800
	Managment Cost	2485200	260100 0	221570 0	2097500	1991700
	TOTAL Recurring Cost	6085200	698100 0	659570 0	6357500	6371700
h	Depreciation	990000	792000	594000	396000	198000
	G Total	7075200	777300 0	718970 0	6753500	6569700
II	RECIEPTS					
A	Sale of milk @ Rs40/-lt (MY in lit.)	8160000 (204000)	876800 0 (21920 0)	8800000 (220000)	8480000 (212000)	8640000 (216000)
B	Sale of calves					
a	Breedable Female @ 30000/- 45 Nos./Year	--	135000 0	1350000	1350000	1350000
b	Breed able Male @ 10000/- 50 Nos./year	--	500000	500000	500000	500000
C	Sale of manure	360000	396000	432000	468000	504000
D	Sale of Cow urine	365000	365000	401500	405500	445500
	Total Receipts	8885000	113790 00	1148350 0	1120350 0	1143950 0
	Net Surplus	1809800	360600	4293800	4450000	4869800

			0			
III	CLOSING STOCK					
a	Depreciated value of animals		408000 0	3060000	2040000	1020000
b	Depreciated value of equipment, shed and office .		427500 0	4050000	3825000	3600000
C	Closing stock value		835500 0	7110000	5865000	4620000
D	BCR	1.50:1				
E	IRR	>50				

A. REPAYMENT SCHEDULE :

Year	Income	Expense s	Gross surplus	Equated annual installment	Net surplus
I	8885000	6085200	2799800	1632000	1167800
II	11379000	6981000	4398000	1632000	2766000
III	11483500	6595700	4887800	1632000	3255800
IV	11203500	6357500	4846000	1632000	3214000
V	11439500	6371700	5067800	1632000	3435800

B. TECHNO ECONOMIC PARAMETERS

1	Animals will be purchased in two batches at an interval of 5-6 month	60+40
2	First/Second location animals within 30 days of calving and 10-12 LPD Peak Milk yield will be purchased in first year	60
3	No. of milch animals & bull/AI kit and LN2 Jars	100+2
4	Cost of milch animals	50000 each
5	Civil structures	
	a) Shed (sqm per milch animal)	6.48
	b) Store and office (sqm)	255
6	Cost of construction a) Shed @ Rs. Per sqm b) store and office @ Rs. Per sqm	2000 4000 & 8000
7	Lactation period (days)	280-310
8	Dry period (days)	80-150
9	Milk yield (Its/days)	8
10	Sale price of milk @ Rs40.00 per lit Fat Avg.4.5 %	40.00 Rs/lt (Increases by Rs 3.0 Every year)
11	Expenditure on dry fodder a) Requirement (Kg/day) b) Cost (Rs/Kg)	5.0 Kg/day @ Rs. 4.0 per Kg (Increases by 10% Every year)

1	Expenditure on concentrates	
2	a) Requirement (Kg/day)	4.0 Kg/day
	b) Cost (Rs/Kg)	(Increases by 10% Every year) 20.00 Rs/Kg
1	Expenditure on Green fodder	
3	a) Requirement (Kg/day)	20 Kg/day
	b) Cost (Rs/Kg)	(Increases by 10% Every year) 1.00 Rs/Kg
1	Labour - 7 (Rs/month)	8000 Rs/month
4	Manager-1 @Rs.29000/month	(Increases by 10% Every year)
1	Insurance premium (%)	6%
5		
1	Cost of electricity, veterinary aid, water and other overheads (Rs/animal)	1500 Rs per animal/year
6		
1	Depreciation (%) a Sheds & equipment	5
7	b Animals	15
1	Interest rate (%)	12
8		
1	Repayment period (years)	5
9		

ASSUMPTIONS:

- 1. Purchase of Animals:** Animals in first or second lactation during first month after calving along with female calves will be purchased in two batches, Sixty percent (60) in first batch and forty percent (40) in second batch at an interval of six months.
- 2. Milk Production:** 10-12lit peak milk yield/ 8 Lit. Per day on an average in a lactation.
- 3. Sale price of milk @ Rs. 40.00** considering 4.5 % fat
- 4. Female Calves:** Female calves born in herd calve at 2 ½ years.
- 5. Maintenance Ration:** The body weight of adult cow is taken as 400 Kg. Maintenance ration is provided by 3 percent dry matter during lactation and 2 ½ Kg per 100 Kg body weight during dry period. Green fodder has 25% dry matter and Dry roughages like Bhusa, Kadbi, pariyal etc and Concentrates / cattle feeds have 90 % dry matter.
- 6. Production Ration:** This will be provided by feeding one Kg. concentrates for every 3 Kg of milk.
- 7. Feeding during Dry period:** Concentrates @ 2-4 Kg per adult per day during last two month of pregnancy..
- 8. Calves Sex Ratio:** 50 % male and 50 % female.
- 9. Female calf feeding Expenses:** Rs. 5000/- during first year and Rs. 15000/- during subsequent years until calving.
- 10. Male calf feeding Expenses:** Rs 5000 per year until sale as a Breeding Bull.
- 11. Mortality in calves:** In adult 3 percent and 10 to 15 percent in calves.
- 12. Labour:** one labour for 15 animals @ Rs.8000/- per month.
- 13. Culling of Animals and Income:** a. When animals becomes reproductively inefficient and producing less milk, they have to be removed and replaced by newly purchased/raised (on the farm) animals, during first three year at the rate of 3-5

- percent per year. b. Income
from culled animals approximately @ 1/3 of the purchase cost.
14. **Manure:** Three tones of manure per animal per year @ Rs. 1000 per tone.
 15. **Cultivable land:** One hectare irrigated cultivable land will be sufficient to supply round the year green fodder for 15 animals.
 16. **Replacement of milch animals:** Animals after 7-8Th lactation or difficult to breed should be culled @ of 10 percent per year. Replacement cost can be minimized by minimizing the Age of maturity of calf along with cost of calf rearing.
 17. **The calf rearing cost can be minimized** by proper rearing, scientific feeding and judicious management along with prevention of diseases.
 18. **Ratio of milch to dry cows:** 3:1 keeping in view their optimum values of reproductive and productive traits.
 19. **Drinking Water Availability:** Free access of fresh and clean drinking water at all time for all stock should be provided. The water Troughs should be cleaned daily and white washed frequently at an interval of 7-10 days to prevent the development of algae etc.

(Dr.Mahendra Kumar Garg)
Assoc. Prof & PI.(RKVY Dairy Project)
Krishi Vigyan Kendra-Kota
M-94142 57242

Proposal for Establishment of Dairy Unit

Dairy farming is an important source of main income in Urban/rural areas

1. Why do Dairy Farming

Dairying is an important source of main income to urban/rural unemployed youth and subsidiary income to small/marginal farmers and agricultural laborers. The milk is a complete food which is consumed by all living beings from birth to death or we may say that milk is a commodity which is consumed by everyone from morning to evening there for, its demand particularly in Urban as well as in rural areas remains towards increasing side.

The surplus fodder and agriculture byproducts are gainfully utilized for feeding the animals. The manure from animals provides a good source of organic matter for improving soil fertility and crop yields. The goober gas from the dung is used as fuel for domestic & commercial purposes, as also for running engines for drawing water from well. Now a day's so many types of medicines are being manufactured by cow urine there for, rearing of cows in Urban/rural areas shall be more economical in

coming days. Almost all draught power for farm operations and transportation can also be supplied by bullocks.

Since agriculture is seasonal which can't provide round the year employment, where as dairying provides employment throughout the year along with daily income in cash.

A youth of urban/rural area can earn a gross surplus of about rupees 25000 to 40000 per year from a cow. Now a day's concept of consumption of Indigenous cow milk is gaining momentum, as awareness has come in peoples that cow milk/ A2 milk is light and easily digestible as compared to buffalo milk. Hence demand of Indian cow milk is increasing day by day. Further sweets like rasgolla is being prepared by cow milk only; therefore, demand of cow milk remains more in urban areas. Hence dairy farming can be taken up as a main occupation around urban cities where the demand for milk remains high.

2. Scope of dairy farming and its national importance

India is the highest milk producer of the world. Even then it is not in position to provide minimum recommended quantity of A2 milk to each and every people of India. At present per capita availability of milk is 322 g per day as compared to 360 g per day recommended by Indian council of medical research (ICMR). Thus there is a tremendous scope/potential in the field of milk production and dairying, particularly in urban areas where most of working people resides.

3. Marketing of fluid milk

It is well known that milk is produced in villages and consumed in cities/urban areas. Transportation of milk from villages to urban areas unnecessarily increases the cost and deteriorates the quality of milk. By promoting production of milk in cities/ urban areas transportation and selling cost can be saved and fresh milk can be provided to the peoples of urban/rural areas.

The dairy farm is planned to establish at Lakheri in Bundi District which is a part of well known Haroti region of Rajasthan having plenty of water and all required resources for rearing milch animals, from where thousand liters of milk is sent to neighboring city Kota to fulfill daily requirement of fluid milk. Therefore, marketing of fresh fluid milk shall not be a problem. Provision of milking machine, bulk cooler, khoa machine, gobar gas plant and pasteurizing unit if required has also been made in this project for fetching more amount per liter of milk by providing fresh milk in packing's of 250, 500 and 1000 ml., other milk products like rasgolla, paneer, shrikhand, flavoured milk and khoa etc. can also be prepared and supplied on order to multimarket also along with fluid milk.

4. Availability of good quality animals

Good quality milch animals remains available at the Dushera Maidan of Kota city throughout the year and Gir breed milch animals can also be purchased from Ajmer district of Rajasthan and from Junagarh area of Gujrat state where good milch animals of Gir breed are available in plenty, therefore, purchasing of quality milch animals is not a problem.

5. Availability of breeding and veterinary aid facilities

Veterinary and AI breeding facilities at state govt. veterinary clinics and at private level also is available in plenty at every Panchayat village, therefore, availability of breeding and veterinary facilities will not be a problem. Further provision of breeding bull own AI kit with Liquid Nitrogen containers of required capacity has also been made in this project.

6. Availability of green/dry fodder, concentrate/cattle feeds and medicines etc.

All required feed ingredients viz. cakes, grains, chury, rice bran, wheat bran and readymade brand cattle feeds and feed supplements, quality green and dry fodder and medicines etc are available in abundance on competitive prices throughout the year. Therefore, availability or regular supply of required ingredients shall not be a problem.

Further because of more return in green fodder production, farmers having good source of irrigation water in nearby villages can also produce and supply green fodder round the year to milk producers. Therefore, contract may be signed with reliable farmer to produce and supply green fodder regularly in required quantity @ of Rs 100 /- per quintal . Further because of wheat, soybean,maize and paddy growing area, wheat bhusa, soybean strovar, jowar/maize karby etc. along with seasonal grasses remains available at nominal prices @ of Rs 150-200 per quintal at the time of harvesting. Therefore, required quantity of dry fodder can be purchased and stored at the time of harvesting the crops.

8. Availability of technical knowhow.

Technical knowhow is available at Krishi Vigyan Kendras establish in each district. Therefore, availability of technical knowhow shall not be a problem. Further technical services of KVK Scientist/vet. Doctors can be taken on contract basis or scientist can be given responsibility to guide as a technical advisor.

Reasons of Failure in Dairying

Thinking of **most** of the peoples entering in Dairy business all across (especially India) the country is quite evident that the general beliefs are:-

1. Dairy Farming is an easy business.

This is because Dairy farming is done by a farmer, who in most cases is not much learned & has been doing this business for quite a lot of years & is making money. However the main constraint in his Dairy farming is that he has been following the traditional methods in everything viz. Feeding & management (which comprises more than 80% of the farming costs) by virtue of which he is not in profits but just making both ends meet along with little help from his agricultural income.

This business is easy provided you are well aware of the basics & are able to apply scientific methods which can help improve the overall profitability. At the same time it must be

understood that Dairy has to be closely observed day in & day out as there is no holiday in dairy farming.

2. Animal gives milk throughout the year.

The animal gives milk only after it gives a calf (offspring) & not otherwise. On an average a cow gives milk for 270-300 days whereas the buffalo gives for 240-270 days. This period (called Lactation) is followed by a Dry period (during which it does not give milk but just EATS) is called as Intercalving period after which she will give the next calf. In India the average Intercalving period in cows is 450 around days & in buffaloes its 500 days or more also.

The main goal in successful Dairying will be to REDUCE this DRY period which eats into the profits & should be given maximum importance.

3. Dairy Business breaks even in the first year.

As in all businesses Dairy business does not break even in first year. The main costs in dairy farming are ;-

A. Capital cost ; For purchase of animals, construction of Shed & purchase of machinery, cans etc. This cost occurs only once & is depreciable over a Period of time totally.

B. Administrative Costs : includes appointment of a Farm manager, Supervisor, skilled & unskilled labours depending upon the requirements as well as the size of the farm. This is a fixed cost for a certain period.

C. Recurring Cost: includes the Feeding & Management along with Vaccination, Insurance, treatment, AI & other miscellaneous costs. This is required daily & is liable to fluctuate at all times. **It will be essential to control these costs which will have a direct bearing on the production (of milk) as well as Reproduction (birth of next calf). At the same time balancing of feed will also determine the REDUCTION of the Intercalving period which has a bearing on total profitability.**

Dairy farmer is NOT AWARE of the Profit & loss account; as he does not pay attention to the Feeding & management which actually accounts for more than 80% expenses in any Farm. At the same time Treatment costs are less than 2% of the total costs; still the farmer pays more attention to TREATMENT than Management & Feeding.

What is essential for the farmer to know that in case he is spending Re.1/- per day more than required; then in a 10 Buffalo/cow Farm then he is likely to incur a LOSS of Rs. Minimum Rs.4,500/- in one Lactation Cycle (which is minimum 450 days or 15 months).

4. Dairy business can be done by being dependent on labours.

This is possible provided the owner is aware of all the intricacies as well as the loop holes in Dairying. It is a well known fact that any labour is not at all concerned with Profitability but (his) net Payments at the end of the month. As such he is likely to use his own parameters for optimizing the profitability of the farm. **Thus it will be extremely imperative for the owner to know & understand all the details of Dairy farming before starting the same.** This will enable him to guide his labours towards the right path & help in minimizing the losses. **A small expense of extra Re. 1 per animal per day can result into a loss of Rs. 130 per day in a farm of 100 cows** (This farm; along with 100 cows will also have calves which will also account for Feeding expense).

5. Dairy Business can be learned from the Net & by getting hold of Project report.

Most of the Dairy farmers in India do not use the NET nor do they use computers. They do not have the records of the animals kept by them & as such only a little information is available on the Net.

Dairy Farming as a business ; keeping large number of animals & following Scientific methods has just started a few years ago but is picking up very fast due to its several advantages viz.

- a. Steady business with steady income unaffected by Recession.
- b. Milk can be sold directly from the farm (No Marketing setup needed)
- c. No brokers; price is already declared by the Government.
- d. Selling rate of milk has been consistently increasing over a period of time.
- e. Consumption accepted by all religions, caste & creed.

However most of the information available on the Net is related to Foreign countries which sadly cannot be applied to the Indian conditions as we differ from them in many ways viz. seasons, soil structure, temperature, greens (quality & availability), number of animals & their genetic potential etc.

At the same time it must be noted that just getting the Project report will be insufficient **as Practical knowledge is equally necessary to start this business.** This can be possible only after getting thorough training and visiting several farms; staying on those for certain time which will be helpful in determining the mental as well as the physical capacity of the person venturing into this Dairying business.

It will be ideal to visit the farms along with an expert (who knows about Dairy farming in detail) so as to understand the correct & incorrect methods being followed in the dairy farm which being visited. This is important as the person newly entering into Dairying will have a clean slate of mind & may Repeat all the mistakes committed by the dairy farmer (A person will NOT admit his mistakes openly). **This can safely be avoided by visiting dairy farms along with an Expert and getting training on scientific dairy management.**
