RESERVE BANK OF INDIA
COLLEGE OF AGRICULTURAL BANKING
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Appraisal of Dairy Project

For dairy schemes with very large outlays, detailed reports will have to be prepared. The items of finance would include capital asset items such as purchase of milch animals, construction of sheds, purchase of equipments etc. The feeding cost during the initial period of one/two months is capitalised and given as term loan. Facilities such as cost of land development, fencing, digging of well, commissioning of diesel engine/pumpset, electricity connections, essential servants' quarters, godown, transport vehicle, milk processing facilities etc. can be considered for loan. Cost of land is not considered for loan. However, if land is purchased for setting up a dairy farm, its cost can be treated as party's margin upto 10% of the total cost of project.

The scheme should include information on land, livestock markets, availability of water, feeds, fodders, veterinary aid, breeding facilities, marketing aspects, training facilities, experience of the farmer and the type of assistance available from State Government, dairy society/union/federation.

The scheme should also include information on the number of and types of animals to be purchased, their breeds, production performance, cost and other relevant input and output costs with their description. Based on this, the total cost of the project, margin money to be provided by the beneficiary, requirement of bank loan, estimated annual expenditure, income, profit and loss statement, repayment period, etc. can be worked out and shown in the Project report.

Technical Feasibility - this would briefly include -

1. Nearness of the selected area to veterinary, breeding and milk collection centre and the financing bank's branch.
2. Availability of good quality animals in nearby livestock market.
3. Availability of training facilities.
4. Availability of good grazing ground/lands.
5. Green/dry fodder, concentrate feed, medicines etc.
6. Availability of veterinary aid/breeding centres and milk marketing facilities near the scheme area.

Economic Viability - this would briefly include -

1. Unit Cost
2. Input cost for feeds and fodders, veterinary aid, breeding of animals, insurance, labour and other overheads.
3. Output costs i.e. sale price of milk, manure, gunny bags, male/female calves, other miscellaneous items etc.
4. Income-expenditure statement and annual gross surplus.
5. Cash flow analysis.
6. Repayment schedule (i.e. repayment of principal loan amount and interest).

Other documents such as loan application forms, security aspects, margin money requirements etc. are also examined. A field visit to the scheme area is undertaken for conducting a techno-economic feasibility study for appraisal of the scheme.

Repayment Period of Loan

Repayment period depends upon the gross surplus in the scheme. The loans will be repaid in suitable monthly/quarterly instalments usually within a period of about 5 years. In case of commercial schemes it may be extended upto 6-7 years depending on cash flow analysis.

Insurance

The animals may be insured annually or on long term master policy, where ever it is applicable. The present rate of insurance premium for scheme and non scheme animals are 2.25% and 4.0% respectively.

Package of Common Management Practices Recommended for Dairy Farmers

Modern and well established scientific principles, practices and skills should be used to obtain maximum economic benefits from dairy farming. Some of the major norms and recommended practices are as follows :

Housing:

1. Construct shed on dry, properly raised ground.
2. Avoid water-logging, marshy and heavy rainfall areas.
3. The walls of the sheds should be 1.5 to 2 meters high.
4. The walls should be plastered to make them damp proof.
5. The roof should be 3-4 metres high.
6. The cattle shed should be well ventilated.
7. The floor should be pucca/hard, even non-slippery impervious, well sloped (3 cm per metre) and properly drained to remain dry and clean.
8. Provide 0.25 metre broad, pucca drain at the rear of the standing space.
9. A standing space of 2 x 1.05 metre for each animal is needed.
10. The manger space should be 1.05 metre with front height of 0.5 metre and depth of 0.25 metre.
11. The corners in mangers, troughs, drains and walls should be rounded for easy cleaning.
12. Provide 5-10 sq. metre loaf space for each animal.
13. Provide proper shade and cool drinking water in summer.
14. In winter keep animals indoor during night and rain.
15. Provide individual bedding daily.
16. Maintain sanitary condition around shed.
17. Control external parasites (ticks, flies etc.) by spraying the pens, sheds with Malathion or Copper sulphate solution.
18. Drain urine into collection pits and then to the field through irrigation channels.
19. Dispose of dung and urine properly. A gobar gas plant will be an ideal way. Where gobar gas plant is not constructed, convert the dung alongwith bedding material and other farm wastes into compost.
20. Give adequate space for the animals.

Selection of Animal :

1. Immediately after release of the loan purchase the stock from a reliable breeder or from nearest livestock market.
2. Select healthy, high yielding animals with the help of bank's technical officer, veterinary/animal husbandry officer of State government/ Zilla Parishad, etc.
3. Purchase freshly calved animals in their second/third lactation.
4. Before purchasing, ascertain actual milk yield by milking the animal three times consecutively.
5. Identify the newly purchased animal by giving suitable identification mark (ear tagging or tattooing).
6. Vaccinate the newly purchased animal against disease.
7. Keep the newly purchased animal under observation for a period of about two weeks and then mix with the general herd.
8. Purchase a minimum economical unit of two milch animals.
9. Purchase the second animal/second batch after 5-6 months from the purchase of first animal.
10. As buffaloes are seasonal calvers purchase them during July to February.
11. As far as possible purchase the second animal when the first animal is in its late stage of lactation and is about to become dry, thereby maintaining continuity in milk production vis-a-vis income. This will ensure availability of adequate funds for maintaining the dry animals.
12. Follow judicious culling and replacement of animals in a herd.
13. Cull the old animals after 6-7 lactations.

Feeding of Milch Animals

1. Feed the animals with best feeds and fodders.
2. Give adequate green fodder in the ration.
3. As far as possible, grow green fodder on your land wherever available.
4. Cut the fodder at the right stage of their growth.
5. Chaff roughage before feeding.
6. Crush the grains and concentrates.
7. The oil cakes should be flaky and crumbly.
8. Moisten the concentrate mixture before feeding.
9. Provide adequate vitamins and minerals. Provide salt licks besides addition of mineral mixture to the concentrate ration.
10. Provide adequate and clean water.
11. Give adequate exercise to the animals. Buffaloes should be taken for wallowing daily. In case this is not possible sprinkle sufficient water more particularly during summer months.
12. To estimate the daily feed requirement remember that the animals consume about 2.5 to 3.0 percent of their body weight on dry matter basis.

Milking of Animals

1. Milk the animals two to three times a day.
2. Milk at fixed times.
3. Milk in one sitting within eight minutes.
4. As far as possible, milking should be done by the same person regularly.
5. Milk the animal in a clean place.

6. Wash the udder and teat with antiseptic lotions/luke-warm water and dry before milking.
7. Milker should be free from any contagious diseases and should wash his hands with antiseptic lotion before each milking.
8. Milking should be done with full hands, quickly and completely followed by stripping.
9. Sick cows/buffaloes should be milked at the end to prevent spread of infection.

V. Protection against Diseases

1. Be on the alert for signs of illness such as reduced feed intake, fever, abnormal discharge or unusual behaviour.
2. Consult the nearest veterinary aid centre for help if illness is suspected.
3. Protect the animals against common diseases.
4. In case of outbreak of contagious disease, immediately segregate the sick, in-contact and the healthy animals and take necessary disease control measures.
5. Conduct periodic tests for Brucellosis, Tuberculosis, Johne's disease, Mastitis etc.
6. Deworm the animals regularly.
7. Examine the faeces of adult animals to detect eggs of internal parasites and treat the animals with suitable drugs.
8. Wash the animals from time to time to promote sanitation.

Breeding Care

1. Observe the animal closely and keep specific record of its coming in heat, duration of heat, insemination, conception and calving.
2. Breed the animals in time.
3. The onset of oestrus will be within 60 to 80 days after calving.
4. Timely breeding will help achieving conception within 2 to 3 months of calving.
5. Breed the animals when it is in peak heat period (i.e. 12 to 24 hours of heat).
6. Use high quality semen preferably frozen semen of proven sires/bulls.

Care during Pregnancy

Give special attention to pregnant cows two months before calving by providing adequate space, feed, water etc.

Marketing of Milk

1. Marketing milk immediately after it is drawn keeping the time between production and marketing of the milk to the minimum.
2. Use clean utensils and handle milk in hygienic way.
3. Wash milk pails/cans/utensils thoroughly with detergent and finally rinse with chloride solution.
4. Avoid too much agitation of milk during transit.
5. Transport the milk during cool hours of the day.

Care of Calves

1. Take care of new born calf.
2. Treat/disinfect the navel cord with tincutre of iodine as soon as it is cut with a sharp knife.
3. Feed colostrum to calf.
4. Assist the calf to suckle if it is too weak to suckle on its own within 30 minutes of calving.

5. In case it is desired to wean the calf immediately after birth, then feed the colostrum in bucket.
6. Keep the calf separately from birth till two months of age in a dry clean and well ventilated place.
7. Protect the calves against extreme weather conditions, particularly during the first two months.
8. Group the calves according to their size.
9. Vaccinate calves.
10. Dehorn the calves around 4 to 5 days of age for easy management when they grow.
11. Dispose of extra calves not to be reared/maintained for any specific purpose as early as possible, particularly the male calves.
12. The female calves should be properly reared.

ANNEXURE I

Cattle and Buffalo Breeds Important Characteristics/Description

Sr. No	Name Breed	Habitat/Main State	Breeding Tract Districts	Assembling Centres	Areas of demand	Remarks
1	**2**	**3**	**4**	**5**	**6**	**7**
A)	**CATTLE**	**(INDIGENOUS)**				
1	Amrithmahal	Erstwhile Mysore State now part of Karnataka	Tumkur and Chitradurg	Erstwhile Mysore State	Karnataka and adjoining area	Draught breed
2	Dangi	Maharashtra and Gujarat	Ahmednagar, Khandesh, Raigad, Nasik, Thane, Surat	Weekly markets in Ahmednagar, Nasik, Thane and West Khandesh district	Rocky ghat areas with heavy rainfall	Draught breed
3	Denoi	Andhra Pradesh Karnataka and Maharashtra	Medak, Nizambad, Mahboobnagar, Adilabad Gulbarga, Bidar, Osmanabad, Nanded	Weekly cattle markets, Jatras and fairs in Bidar and adjoining districts	Bidar and adjoining districts	Draught purposse breed
4	Gir	Gir Hills and forest of South Kathiawar	Junagarh, Also maintained by NDRI, Bangalore	_	Gujarat, Rajasthan, Maharashtra	Dairy purpose breed
5	Hallikar	Karnataka	Tumkur, Hassan & Mysore	Dodbalapur, Chickballapur, Harikar, Devargudda, Chikkuvalli, Karuvalli, Chittavadgi (T.N.) North Arcot (T.N.) Hindupur, Somaghatta, Anantpur (A.P.)	Dharwar, North Kanara, Bellary (KT) Anantur & Chittur (A.P.), Coimbatore North Arcot, Salem (T.M.)	Draught breed
6	Hariana	Haryana and Delhi, Punjab, Rajasthan	Rohtak, Hissar, Gurgaon, Karnal, Patiala, Sangrur, Jaipur, Jodhpur, Alwar, Bharatpur Western districts	Cattle fairs at Jehazgarh, Mahim and Bhadurgarh (Rohtak dist.) Hansi & Bhiwani (Hissar dist.)	Throughout the country	Dual purpose breed

7	Kangayam	Tamil Nadu	Coimbatore	Avanashi, Tirppur, Kannauram, Madurai Athicombu	Southern Districts of Tamil Nadu	Draught breed
8	Kankrej	Gujarat	Ahmedabad, Banaskantha	Ahmedabad, Radhanpur	Rajasthan, Maharashtra	
9	Khillari	Maharashtra	Solapur, Kolhapur, Satara	Southern Districts of Maharashtra and adjoining districts of Andhra Pradesh and Karnataka		Draught breed
10	Krishna Valley	Maharashtra, Andhra Pradesh, Karnataka	Watersheds of Krishna and adjoining areas of A.P. and KT	Ichalkaranji (Kolhapur), Chincahli (Gulbarga)		
11	Malvi	Madhya Pradesh	Guna, Vidisha, Raisen Sehora, Ujjain, Indore, Dewas, Gwalior, Shivpuri, Mandsaur, Jhabus & Dhar	Agar (Shajapur) Singaj (Nimar) Sehore & Ashta (Sehore)		Draught purpose
		Rajasthan	Jhalwar and Kotah	Karimnagar (A.P.)		
12	Nagori or Nagauri	Rajasthan	Jodhpur & Nagaur	Nagaur Parbatsar (Nagpur), Balotra (Barmer), Puskar (Ajmer), Hissar, Hansi (Haryana State)	Rajasthan, Haryana, Uttar Pradesh	Draught purpose
13	Ongole	Andhra Pradesh	Ongole, Guntur, Narasaraopet, Bapatla and Nellore	Available in Ongole tract of Andhra Pradesh	-	Dual Purpose
14	Rathi	Rajasthan	Alwar, Bharatpur, Jaipur	Alwar, Rewari (Gurgaon), Pushkar (Ajmer)	- -	- Dairy breed
15	Sahiwal	Punjab, Haryana, Delhi, U.P., Bihar, M.P., W.B.	Sahiwal (erstwhile Montgomery)	Jullundar, Gurdaspur, Amritsar,	-	Dairy breed

				Kapurthala, Ferozepur (Punjab), NDRI, Karnal, Hissar, Anhora Durg (M.P), Lucknow, Meerut, Bihar, W.B.		
16	Red Sindhi	Pakisatan All parts of India	-	-	-	Dairy breed
17	Siri	Sikkim, Bhutan	Darjeeling Hill Tract	Darjeeling (Brought by dealers)	-	Dual purpose
18	Tharparkar	Pakisatn (sind)	Umarkot, Naukot, Dhoro Naro Chor	Balotra (Jodhpur), Puskar (Ajmer), Gujarat State	-	Dairy breed

B) CATTLE (EXOTIC)

1	Brown Swiss	Switzerland	-	India, Pakisatan & other Asian countries	-	Dairy breed
2	Holstein Friesian	Holland	Province of North Holland and West Friesland	Through out the country (crossbreds)	-	Dairy breed
3	Jersy	British Isles	Island of Jersey	Crossbreds available in all states/U.Ts	-	Dairy breed

B) BUFFALOES

1	Bhadawari	Uttar Pradesh, Madhya Pradesh	Bah Tehsil in Agra Adjoining areas of Gwalior	Local markets in Breeding areas (Agra, Kanpur, Etawah, Jalaun, Jhansi)	-	Dairy Breed
2	Jaffarabadi	Gujarat	Kathiawar and Honreli	Breeding areas of Saurashtra	-	Dairy breed
3	Mehsani	Gujarat	Mehsana, Banaskantha, Sabarkantha tract in Gujarat	Ahmedabad, Mehsana and other places of breeding	-	Dairy breed
4	Murrah	Haryana,	Rohtak,	Rohtak,	-	Dairy Breed

		Uttar Pradesh, Punjab	Hissar, Karnal, Jind, Gurgaon, Western parts of Uttar Pradesh Nabha and Patiala	Bahadurgarh, Delhi, Jahanzgarh, Mahim, Hissar, Bhiwani, Hansi, Rewari, Ferozpur, Jirka, Nangloi, Narela		
5	Nagpuri	Maharashtra, Andhra Pradesh	Wardha, Nagpur Yeotmal, Adilabad, and adjoining parts	Vidarbha area of Maharashtra and Adilabad district of A.P.	-	Dual purpose breed
6	Nili Ravi	Punjab	Ferozepur (Montogomery Pakisatan)	Ferozpur District of Punjab	-	Dairy breed
7	Surti	Gujarat	Kheda, Vadodara (Charottar tract)	Through out Gujarat	-	Dairy breed

ANNEXURE - II

Reproductive and Productive Parameters (Traits) in Indian Cattle and Buffaloes

Sr.No	Name of the breed	Age at first calving (months)	Calving interval (months)	Lactation yield (kg.)	Lactation length (days)	Dry period (days)	Milk yield kg/day during lactat-ion
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
i)	**Cattle**						
a)	**Indian breeds**						
1	Dangi	54	17	600	300	210	2.0
2	Deogir	48	15	1,500	300	150	5.0
3	Deoni	53	14	810	270	150	3.0
4	Gir	48	16	1,350	270	210	5.0
5	Gaolao	46	16	600	300	180	2.0
6	Hallikar	46	20	600	300	300	2.0
7	Hariana	58	13	1,200	240	150	5.0
8	Kangayam	44	16	600	240	240	2.5
9	Kankrej	48	17	1,800	360	150	5.0
10	Khilari	52	16	240	240	240	1.0
11	Ongole	40	19	630	210	360	3.0
12	Rathi	40	19	1,815	330	240	5.5
13	Red Sindhi	42	14	1,620	270	150	6.0
14	Sahiwal	40	14	1,620	270	150	6.0
15	Tharparkar	50	14	1,620	270	150	6.0
16	Umblachery	46	17	360	240	270	1.5
17	Non-descript	60	19	405	270	300	1.5

B) Crossbred Cattle (Bos indicus Fx Bostaurus M)

Sr.No	Name of the breed	Age at first calving (months)	Calving interval (months)	Lactation yield (kg.)	Lactation length (days)	Dry period (days)	Milk yield kg/day during lactation
1	H x F	34	14	2,970	330	90	9.0
2	H x BS	29	15	2,805	330	120	8.5
3	H x J	33	13	2,850	300	90	9.5
4	G x J	25	13	2,640	330	60	8.0
5	G x F	25	13	2,160	270	120	8.0
6	RS x F	29	12	2,295	270	90	8.5
7	RS x RD	28	12	2,160	270	90	8.0
8	RS x J	29	12	1,500	300	90	5.0
9	R x J	32	12	2,700	300	60	9.0
10	T x F	33	13	2,550	300	90	8.5
11	S x F	33	14	2,400	300	120	8.0
C)	**Buffaloes**						

1	Bhadawari	50	15	1,080	270	180	4.0
2	Murrah	42	16	1,800	300	180	6.0
3	Nili-Ravi	54	16	1,950	300	180	6.5
4	Surti	44	16	1,765	330	150	5.5
5	Mehsani	50	14	1,620	270	150	6.0
6	Jaffarabadi	50	14	1,620	270	150	6.0
7	Pandharpuri	56	14	1,350	270	150	5.0
8	Marathwadi	50	14	1,015	270	150	3.5
9	Nagpuri	50	14	1,350	270	150	5.0
10	Dharwari	50	14	1,350	270	150	5.0
11	Non-descript	50	16	540	270	210	2.0

Key : H = Hariana S = Sahiwal RS = Red Sindhi
G = Gir T = Tharparkar L = Non-descript
R = Rathi F = Friesian BS = Brown Swiss
RD = Red dane J = Jersey

Annexure - III
Unit cost of cows and buffaloes Approved
by NABARD in some of the major States in India

Sr. No	State			**Cows**				**Buffaloes**	
			Unit Cost (Rs.)	Breed	Yield (litres/ day)		Unit cost (Rs.)	Breed	Yield (litres / day)
1	**2**		**3**	**4**	**5**		**6**	**7**	**8**
1	Andhra Pradesh		6,000 7500 9500	Crossbred Crossbred Crossbred	6 8 10		7,500 10000 -	Graded Murrah Graded Murrah	6 8 -
2	Assam		10,000	Crossbred	7		8,500	Graded Murrah	7
3	Bihar		13,000	Crossbred	10		9,000	Graded Murrah	7-8
			6,000	Indigenous	5-6		7,000	Local (improved)	5-6
4	Gujarat	i)	14,000	Jersey X	8-9	i)	13,500	Surti	5.5
		ii)	16,000	H.F.X	9-10	ii)	13,000	Mehsani	6
						iii)	14,000	Jaffarabadi	6
5	Karnataka	i)	7,300	Crossbred	6	i)	6,600	Graded Surti	5
		ii)	9,700	Crossbred	8	ii)	7,800	Graded Murrah	6
		iii)	10,900	Crossbred	9	iii)	9,000	Pandarpuri	7
		iv)	12,100	Crossbred	10	iv)	11,000	Pure Mehsani	8
6	Madhya Pradesh	i)	9,500	Jersey X		i)	7,000	Graded Murrah	6
		ii)	6,500	Gir/Tharparkr/Sahiwal	8	ii)	8,250	Graded Murrah	7
					7	iii)	6,000	Nagpuri	5
7	Maharashtra	i)	11,200	Crossbred	6	i)	7,000	GMB/Mehsani	7
		ii)	14,000	Crossbred	10	ii)	8,000	GMB/Mehsani	8
		iii)	8,400	Tharparkar/ Gir/Hariana	6-7	iii)	6,000	Surti/ Jaffarbadi	6
			to			iv)	7,000	Nagpuri/ Dharwari	7
			9,500			v)	5,000	Pandharpuri	5
						vi)	6,000		6
8	West Bengal	i)	9,500	Crossbred	6		-	-	-
		ii)	12,000	Crossbred	8		-	-	-
9	Orissa	i)	6,000	Crossbred	6		6,300	Graded Murrah	6
		ii)	7,000	-do-	7				
		iii)	8,000	-do-	8				
10	Punjab/Haryana	i)	2,700	Indigenous	5				
		ii)	7,950	Crossbred(J)	9	i)	7,450	Murrah	7

			8,900	-do-(HF)	10	ii)	6,500	Graded Murrah	6
11	Rajasthan	i)	10,400	-do-	8		11,200	Graded Murrah	7
		ii)	11,700	-do-	9		9,000	Surti	6
		iii)	13,000	-do-	10				
12	Uttar Pradesh		10,000	Crossbred	10		11,000	Graded Murrah	8
13	Kerala		6,000	Crossbred	6		7,200	Graded Murrah	6-6.5
			8,000	Crossbred	8				
14	Himachal		6,600	Crossbred	8		9,000	Graded Murrah	6
15	Tamil Nadu		8,250	Crossbred	6		9,800	Graded Murrah	6

Hand out relevant for Programmes on Financing Agriculture, RDPC etc prepared by C P Mohan, Deputy General Manager and Member of Faculty, Reserve Bank of India, College of Agricultural Banking, Pune. The handout is Developed based on the Model Schemes prepared by NABARD.