

Sheep Farming

1. Why Sheep Farming ?

Sheep with its multi-facet utility for wool, meat, milk, skins and manure, form an important component of rural economy particularly in the arid, semi-arid and mountainous areas of the country. It provides a dependable source of income to the shepherds through sale of wool and animals. The advantages of sheep farming are :

- i) Sheep do not need expensive buildings to house them and on the other hand require less labour than other kinds of livestock.
- ii) The foundation stock are relatively cheap and the flock can be multiplied rapidly.
- iii) Sheep are economical converter of grass into meat and wool.
- iv) Sheep will eat varied kinds of plants compared to other kind of livestock. This makes them excellent weed destroyer.
- v) Unlike goats, sheep hardly damage any tree.
- vi) The production of wool, meat and manure provides three different sources of income to the shepherd.
- vii) The structure of their lips helps them to clean grains lost at harvest time and thus convert waste feed into profitable products.
- viii) Mutton is one kind of meat towards, which there is no prejudice by any community in India and further development of superior breeds for mutton production will have a great scope in the developing economy of India.

2. Scope for Sheep Farming and Its National Importance

2.1 The country has 56.8 million sheep as per 1997 livestock census and ranks sixth in the world. The statewise sheep population are given in Annexure I. During 2001-02 wool production stands at the modest level of 50.709 million, skin with wool sheep 524 MT, sheep and goat meat 700500 MT in 2001-02, sheep fresh 52380 MT. The export earnings from different woollen products during 1994-95 was Rs.25773 million. The contribution of sheep to total meat production in the country is around 14 percent. The contribution of sheep through export of meat is 8 percent of the total export value of agricultural and processed food products. Live sheep are also exported for meat purpose. Sheep skin in the form of leather and leather products is also exported.

2.2 Sheep make a valuable contribution to the livelihood of the economically weaker sections of the society. Amongst the livestock owners the shepherds are the poorest of

the lot.

2.3 Realising the importance of sheep in Agrarian economy the Central Government had established the Central Sheep and Wool Research Institute (CSWRI) at Avikanagar in Rajasthan. Number of sheep breeding farms were established during various plan periods throughout the country for evolving (i) new fine wool breeds for different agro-climatic regions capable of producing 2.5 kg. of greasy wool per annum. (ii) new mutton breeds capable of attaining 30 kg. live weight at 6 months of age under intensive feeding conditions. Sheep development activities were initiated under :

DPAP, MFAL and SFDA programmes. Intensive Sheep Development Projects (ISDP's) were introduced in many of the sheep rearing districts. Setting up of wool boards in important wool producing states was envisaged and States of Jammu & Kashmir and Karnataka have already set up these boards. Some of the states have set up wool development corporations / federations. The states having such organisations are given in Annexure II.

3.0 Financial assistance available from banks / NABARD for sheep farming

3.1 NABARD is an apex institution for all matters relating to policy, planning and operation in the field of agricultural credit. It serves as refinancing agency for the institutions providing investment and production credit for agriculture and rural development. It promotes development through a well organised Technical Services Department at the Head Office and Technical Cells at each of the Regional Offices.

3.2 Loan from banks with refinance facility from NABARD is available for starting sheep farming. For obtaining bank loan, the farmers should apply to the nearest branch of a Commercial, Co-operative or Regional Rural Bank in their area in the prescribed application form which is available in the branches of financing bank. The Technical officer attached to or the Manager of the bank can help / give guidance to the farmers in preparing the project report to obtain bank loan.

3.3 For sheep development schemes with very large outlays, detailed reports will have to be prepared. The beneficiaries may utilise the services of NABARD Consultancy Services (nabcons) having good experience in developing livestock projects for preparation of the project report to avail the bank loan for the items such as purchase of breeding animals, construction of sheds, purchase of equipments etc. The cost of land is not considered for loan.

4.0 Scheme Formulation

A scheme can be prepared by a beneficiary after consulting local technical persons of State Animal Husbandry Department, DRDA, Sheep development Corporation, Sheep Co-operative society / union / federation and commercial farmers. If possible, the beneficiaries should also visit progressive sheep farmers and government / agricultural university Sheep farms in the vicinity and discuss the profitability of sheep farming. A

good practical training and experience in sheep farming will be highly desirable. The sheep co-operative societies established in the villages as a result of efforts by the Sheep Development Department of State Government / Sheep Development Board would provide all supporting facilities, particularly marketing of live animals and wool. Nearness of the sheep farm to such a society, veterinary aid and breeding centre should be ensured.

The scheme should include information on land, livestock markets, availability of water, feeds, fodder, veterinary aid, breeding facilities, marketing aspects, training facilities, experience of the farmer and the type of assistance available from State Government, Sheep 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 included in the scheme.

5.0 Requirements of a Good Project

A check list prepared by NABARD for formulation of sheep development schemes is given in Annexure III. The scheme so formulated should be submitted to the nearest branch of bank. The bank's officers can assist in preparation of the scheme or filling in the prescribed application form. The bank will then examine the scheme for its technical feasibility and economic viability.

A) Technical Feasibility - This would briefly include

(a)Nearness of the selected area to veterinary aid, breeding cover and wool collection centre and the financing bank's branch.

(b)Availability of good quality animals in nearby livestock markets. The distribution of sheep breeds in India are given in Annexure IV-a, while the wool production and quality in IV-b.

(c)Source of training facilities. The major institutions providing training in Sheep farming are given in Annexure V.

(d)Availability of good grazing ground / lands.

(e)Availability of green/dry fodder, concentrate feed, medicines etc.

(f)Availability of veterinary aid / breeding centres and marketing facilities near the scheme area.

B) Economic Viability - This would briefly include

(a) Unit Cost - The average cost of Sheep units for some of the States is given in Annexure VI.

(b) Input cost for feeds and fodders, veterinary aid, insurance, shearing etc.

(c) Output costs i.e. sale price of animals, wool, penning etc.

(d) Income-expenditure statement and annual gross surplus.

(e) Cash flow analysis.

(f) 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. The economics of sheep farming is given in Annexure VII.

6. Sanction of Bank Loan and its Disbursement

After ensuring technical feasibility and economic viability, the scheme is sanctioned by the bank. The loan is disbursed in stages against creation of specific assets such as construction of sheds, purchase of equipments and animals. The end use of the loan is verified and constant follow-up is done by the bank.

7. Lending Terms - General

7.1 Unit cost

Each regional office (R.O.) Of NABARD has constituted a State Level Unit Cost Committee under the chairmanship of RO-in-charge and with the members from developmental agencies, commercial banks and cooperative banks to review the unit cost of various investments once in six months. The same is circulated among the banks for their guidance.

7.2 Interest Rate for ultimate borrowers

Banks are free to decide the rate of interest within the overall RBI guidelines. However for working out financial viability and bankability of the model project we have assumed the rate of interest as 12% p.a.

7.3 Margin Money

NABARD has defined the farmers into three different categories and where subsidy is

not available the minimum down payment to be contributed by the beneficiaries are given in the following table.

Sr. No.	Category of Farmer	Beneficiary's Contribution
A	Small farmers	5%
B	Medium farmers	10%
C	Large farmers	15%

7.4 Security

Security will be as per NABARD / RBI guidelines issued from time to time.

7.5 Repayment Period of Loan

Repayment period depends upon the gross surplus generated. The loans will be repaid in suitable half yearly / annual installments usually within a period of about 5-6 years with a grace period of one year.

8. Package of Common Management Practices Recommended for Sheep Farmers

Modern and well established scientific principles, practices and skills should be used to obtain maximum economic benefits from sheep farming. Some of the major norms and recommended practices are given here under

8.1. Selection and purchase of Animal

- i) It is necessary to select suitable improved breed of sheep available in particular area.
- ii) Crossbred sheep are available for purchase from state Government / Government of India sheep breeding farms.
- iii) Ewes can be purchased in regular sheep markets or from breeders in villages, while male sheep (rams) of exotic / crossbred from Government farms.
- iv) A purchase committee, consisting of the borrower, the financing bank's representative and a veterinary assistant surgeon may be constituted or else cash payments could be done to borrower to select his own animals.
- v) It is desirable to purchase healthy animals of 12-18 months of age.
- vi) A certificate regarding age and health of sheep is obtained from the veterinary assistant surgeon.

vii) The animals purchased have to be identified by fixing ear tags.

viii) Sheep should be vaccinated for important diseases like sheep-fox and enterotoxaemia.

ix) The price of sheep depends on breed, age and health status.

x) An entrepreneur should have a unit of 20-30 ewes and one ram.

8.2 Pregnant, Parturient and Lactating Ewes

Careful management of the pregnant, parturient and lactating ewes will have a marked influence on the percentage of lambs dropped and reared successfully. So, the following steps may be taken to afford proper attention to these animals.

i) Do not handle the pregnant ewes too frequently.

ii) Separate the advanced pregnant ewes from the main flock and take effective care in their feeding and management.

iii) Extra feed during the later part of pregnancy (3-4 weeks before parturition) will be beneficial for the condition of the pre-parturient ewes which will help in improving milk production of ewes, birth weight and growth of lambs.

iv) Inadequate and poor nutrition may result in pregnancy, toxæmia, abortions and premature births of weak lambs.

v) Bring lambing ewes into lambing corals 4-6 days before parturition and provide maximum comfort. If possible, provide soft, clean bedding and individual lambing pens.

vi) Watch gestation length which ranges from 142 to over 150 days. Early maturing breeds have slightly shorter gestation period.

vii) Save parturient ewes from cold and chilly weather.

8.3 Care at Lambing / Parturition

An ewe about to lamb prefers to leave the flock. She is restless, the udder is often distended and external genital are in a flushed and flaccid condition. Generally in a healthy ewe parturition is normal. Still the following precautions may be taken during and after parturition.

i) Keep a vigilant eye for dystokia or difficult birth.

ii) Maiden ewes in poor condition or small-framed ewes mated to big rams will generally

have difficulty in parturition and will have to be assisted.

iii) Seek prompt veterinary aid and advice from an experienced shepherd or stockman in case of dystokia.

iv) Newborn lambs, after being licked by the mother generally stand on their legs and start seeking for teats and suckle milk. If they are not able to do so after sufficient time, provide help to them in suckling colostrum (the first milk) which is very essential for health and survivability of lambs.

v) Save newborn lambs from cold, rain and winds.

vi) Resort to artificial milk feeding or arrange foster mothers to disowned or orphan lambs. Goats can serve as excellent foster mother but ewes which have lost their lamb early after birth may also be utilized.

vii) Ligate, sever and antiseptically dress the naval cord of the lamb.

viii) Give a teaspoonful of castor-oil or liquid paraffin to the lamb to facilitate defecation and passing out of meconium easily.

ix) Do not handle lambs too frequently immediately after birth and let the dams lick and recognize them properly.

x) Allow newborn lambs to be with their mothers all the 24 hours for first week or so.

xi) Feed sufficient quantity of good-quality hay and concentrates (if possible) to the lactating ewes for meeting nutritional requirements for early lactation.

xii) Provide plenty of clean fresh drinking water as the lactating ewes drink surprisingly higher amount of water during lactation.

8.4 Care of Lambs

The lamb should be taken care of to the maximum extent during early period of life. This will also ensure better survival. The following steps may be taken for ensuring better growth and survival.

i) Ensure proper suckling of lambs. Examine udders for blindness of teats or mastitis.

ii) Take care of indifferent mothers and arrange suckling of lambs by restraining such type of ewes.

iii) Provide creep feed (good quality hay with or without concentrate mixture) to suckling lambs in addition to suckling of milk from tenth day to weaning age.

iv) If possible, make available green leguminous fodder or fresh tree leaves to lambs to nibble during suckling period.

v) Lambs may be ear-tagged or tattooed on the ear for identification (tattooing forceps and ear-tagging forceps should also be cleaned and sterilized at the time of use). Tail docking and castration may also be done in first week or so by placing elastrator (strong rubber band) at the intervertebral space and not on the vertebra.

vi) Alternatively use sterilized and clean knife for castration and docking and resort to proper ligation and antiseptic dressing at the roof of scrotum with testicles before it.

vii) During castration keep the lambs on perfectly dry, clean and hygienic site so as to minimize the risks of losses from tetanus.

8.5 Weaning and Care of Weaners

The management of Weaners plays an important part in good sheep husbandry. The following steps are important in proper care and management of weaners.

i) Weaning should preferably be done at 90 days, although in breeds with low milk production or where re-breeding is desired it can be done around 60 days.

ii) Supplementary feeding and good clean pastures for growing weaners should be provided. The nutrient requirements for growing lambs and adult ewes are given in Annexure VII-a.

iii) Weaned lambs should be drenched against gastro-intestinal parasites by first month; and vaccinated against enterotoxaemia and sheep-pox.

iv) Weaners should not be grazed on poor burry and thorny types of pasture since it could cause skin irritation, injury to the eyes and damage to wool.

v) They should be protected against vagaries of climates and predation.

8.6 Housing and Shelter Management

i) Normally sheep do not require elaborate housing facilities but minimum provisions will definitely increase productivity, especially protection against inclement weather conditions (sun, rain and winds) and predation. Shed could be provided with gunny bags or temporary or removable protections made of thatching material and bamboos. The roof of the shed should be made of the asbestos sheet supported by tubular or angular steel, but wooden rafters and thatching material could also be used.

ii) Exotics should be provided 0.9-1.1 m² and native and crossbred sheep 0.8-0.9 m² space per head. Sheds measuring 18m x 6m can accommodate about 120 sheep.

iii) A chain link fencing or thorny bush enclosure of 12m x 6m can be provided for night paddocking of sheep on each side of the shed.

8.7 Culling

Culling of sheep is very important for the development of a good flock. It helps to remove undesirable animals and breeding from those which are most approximating the ideal sheep. About 10-20 per cent culling should be practised annually to develop a good flock. The flock size should be maintained by replacing culled ewes by ewe lambs born in the flock.

8.8 Maintenance of Records

It is very essential to maintain the necessary records at an organized (experimental or commercial) sheep farm to know about the inputs and outputs. This helps in working out the economy of sheep production per unit of area and per animal. The following records should be maintained : livestock strength, breeding, lambing, shearing, wool production, mortality, purchase of animal feeds, medicines, sale of animals and wool.

8.9 Identification

The shepherds commonly practice notching or punching holes in the ears for identification of lambs. Tattooing is also satisfactory but is more expensive. Metal or plastic ear-tags with stamped letters and numbers are most suitable although they are relatively expensive and heavy for the ears of the smaller native sheep. These ear-tags are applied with the help of a clincher.

8.10 Dipping

To control the ectoparasites the sheep should be dipped a few weeks after shearing when they have grown sufficient new wool to hold the chemical substance. There are standard designs for sheep dips and there are many products effective against ectoparasites. A foot-bath may also be provided at the entrance of the farm to prevent the spread of contagious diseases like foot-and-mouth and footrot.

8.11 Health Management

The health management calendar given in Annexure VIII may be followed for better health of stock.

8.12 Shearing

- i) Shearing is done mechanically either with clippers, a pair of scissors or by power-operated machines depending upon the size of operations.
- ii) Most flocks are usually shorn twice a year, i.e. March-April after the winter and

September-October after the rains. In some states like Jammu & Kashmir and Rajasthan sheep are shorn thrice a year.

9. Marketing of Wool and Animals

i) The wool and meat sector in the country is small and widely scattered. This is the sector, where organised sector and decentralised sector run complimentary to each other towards meeting the requirements of all sections of the domestic market as well as export. The sector is very loosely knit and heterogenous. Taking the due cognizance of these complexities in the wool sector the Government of India has constituted the Central Wool Development Board in the Ministry of Textiles for the overall growth and development of this sector. The State Governments have also set up separate corporation/Federation to encourage the sector.

ii) Shepherds generally market wool and animals, through rural agents on the basis of rough estimates of weights. The animals are also sold in village weekly markets, where shepherds are exploited to a great extent.

iii) State Governments through sheep corporation, board and federation have also set up sheep co-operative societies which also purchase wool and animals on weight basis and shepherds are paid better prices.

ANNEXURE 1

STATEWISE SHEEP POPULATION IN INDIA - 1997

(in thousands)

SI No.	States/U.T.s	Total
1	Andhra Pradesh	9743
2	Arunachal Pradesh	27
3	Assam	84
4	Bihar	1956
5	Chattisgarh	196
6	Goa	0
7	Gujarat	2158
8	Haryana	1275
9	Himachal Pradesh	1080
10	Jammu & Kashmir	3170
11	Karnataka	8003
12	Kerala	3
13	Madhya Pradesh	657
14	Maharashtra	3368
15	Manipur	8
16	Meghalaya	17
17	Mizoram	1
18	Nagaland	2
19	Orissa	1765
20	Punjab	436
21	Rajasthan	14585
22	Sikkim	5
23	Tamil Nadu	5259
24	Tripura	6
25	Uttar Pradesh	1905
26	Uttaranchal	311
27	West Bengal	1462
	Union Territories	
28	Andaman & Nicobar Islands	0
29	Chandigarh	0
30	Dadra & N Haveli	0

31	Daman & Diu	0
32	Delhi	11
33	Lakshadweep	0
34	Pondicherry	2
	All INDIA	57494

ANNEXURE II

STATE SHEEP AND WOOL BOARDS / FEDERATIONS / CORPORATIONS

1. APCO Wool

3-5-770. Weavers Bhawan

Narayan Guda

Hyderabad - 500 029 (AP)

2. Gujarat Sheep & Wool Development Corporation Limited

"Shreekunj" Opp. Navarangpura Telephone Exchange

Ellisbridge

Ahmedabad - 380 006 (Guj.)

3. Himachal Pradesh State Co-operative Wool Procurement and

Marketing Federation Limited

Pashudhan Bhawan, Boileauganj

Shimla - 171 005 (HP)

4. Jammu & Kashmir State Sheep & Sheep Products Development Board.

Kartholi, Bari Brahmana

Jammu - 181 133 (J&K)

5. Karnataka Sheep & Sheep Products Development Board

No. 58, IInd Main Road, Vyalikaval

Bangalore - 560 003 (Karnataka)

6.Maharashtra Mendhi Va Sheli Vikas Mahamandal Limited

Mendhi Farm, Gokhale Nagar

Pune - 411 016 (Maha.)

7.Rajasthan State Co-operative Sheep & Wool Marketing

Federation Limited.

Gandhi Nagar, Tonk Road,

Jaipur (Raj.)

8.Uttar Pradesh Poultry & Livestock Specialities Limited

Directorate of Animal Husbandry

Badshah Baug, Gorakh Nath Road

Lucknow (U.P.)

ANNEXURE - III

FORMAT FOR SUBMISSION OF SCHEMES

Scheme : Sheep Breeding / Rearing

1. GENERAL

- i) Name of the sponsoring bank
- ii) Address of the controlling office sponsoring the scheme
- iii) Nature and objective of the proposed scheme
- iv) Details of proposed investments

Sr.No.	Investment	No. of units
(a)		
(b)		
(c)		

- (v) Specification of the scheme area (Name of District/Block)

Sr. No.	District	Block
(a)		
(b)		
(c)		

- vi) Names of the financing bank's branches

Sr.No.	Name of the Branch	District
(a)		
(b)		
(c)		

- vii) Status of beneficiaries:

(Individual/Partnership/ Company/Corporation/

Co-operative Society/Others)

viii) In case of area based schemes, coverage of borrowers in weaker sections (viz. Landless labourers), small, medium & large farmers as per NABARD's norm, SC/ST, etc.

- (a) Capability
- (b) Experience
- (c) Financial Soundness
- (d) Technical/other special Qualification
- (e) Technical/Managerial Staff and adequacy thereof

2. TECHNICAL ASPECTS

a)Animals

- i) Proposed Breed
- ii) Age of the animal
- iii) Arrangements for vaccination, identification and health certificate
- iv) Insurance
- v) Cost of ram
- vi) Cost of ewes

b)Production parameters

- i) Age at first lambing
- ii) Lambing interval
- iii) Lambing percentage
- iv) Number of lambs produced
- v) Mortality of adults
- vi) Age at which lambs are sold

vii) Body weight of animals

c) Flock projection - For big units only (with all assumptions)

d) Housing

- i) Type of housing
- ii) Floor space - adults/lambs
- iii) Cost of construction
- iv) Other civil structures

(for commercial units)

e) Equipment needed

- i) Chaff cutter
- ii) Feeding trough
- iii) Shearing equipment/scissors

f) Comments on technical feasibility

g) Government restrictions, if any

3. FINANCIAL ASPECTS

i) Unit Cost

Sr.No.	Name of Investment	Size of unit	Unit Cost (with component-wise break-up (Rs.))	Whether approved by state level unit Cost Committee
		a)		
		b)		
		c)		
		d)		
		Total		

ii) Down payment/margin/ subsidy (indicate source & extent of subsidy)

iii) Year-wise physical & financial programme

Year	Investment	No. of units	Unit Cost	Total Outlay	Margin	Bank Loan	Refinance Assistance
1	2	3	4	5 (3x4)	6	7	8
Total							

iv) Financial viability (comment on the cash flow projection on a farm model/unit and enclose the same)

	Item of investment		
	X	Y	X
a) Internal Rate of Return (IRR)			
b) Benefit Cost Ratio (BCR)			
c) Net Present Worth (NPW)			

v) Financial position of the borrower/s (to be furnished in case of corporate bodies/partnership firms)

a) Profitability Ratios

i) GP Ratio

ii) NP Ratio

b) Debt Equity Ratio

c) Whether Income Tax & Other tax obligations are paid upto date

d) Whether audit is upto date (enclose copies of audited financial statements for the last 3 years)

vi) Lending Terms

i) Rate of interest

ii) Grace period (investment-wise)

Sr. No. Name of the Investment Grace Period (years)

(a)

(b)

(c)

iii) Repayment period (investment-wise)

Sr. No.	Name of the Investment	Period (years)
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(a)

(b)

(c)

vii) Nature of security

viii) Availability of Government Guarantee Wherever Necessary

4. INFRASTRUCTURAL FACILITIES

a) Availability of animals

i) Source

ii) Place of purchase

iii) Distance

iv) Type of arrangements for purchase

v) Availability in required numbers

b) Grazing Land

i) Adequacy

ii) Distance

iii) Duration of grazing

iv) Condition of grazing lands

v) Cost to be paid/animal

c) Feeding

i) Type of fodder

ii) Source

iii) Cost/animal year

In case of commercial units area under fodder crops is required to be given

d) Breeding Cover

i) Source

ii) Place

iii) Distance

iv) Type of services available

v) Availability of staff

vi) Cost/animal/year

e) Marketing

i) Source for Animals

Milk

Wool

ii) Place

iii) Distance

iv) Price realised - Animals – culls lambs

Wool (Rs./Kg.)

Milk (Rs./liter)

f) Other aspects

i) Source of technical guidance

ii) Training facilities

- Source

- Periodicity

- Duration

iii) Other Government Support

g) supervision and monitoring arrangements available with the bank

ANNEXURE - IV a

REGIONWISE DISTRIBUTION OF SHEEP BREEDS IN INDIA

North Western arid and semi-arid region	Southern peninsular region	Eastern region	Northern temperature region
Chokla	Deccani	Chottanagpuri	Gaddi
Nali	Bellary	Shahabadi	Rampur
Marwari	Nellore	Balangir	Bushair
Magra	Mandya	Ganjam	Bhakarwal
Jaisalmeri	Hassan	Tibetan	Poonchi
Pungal	Macheri	Bonpala	Gurez
Malpura	Kilakarsal		Kashmir Merino
Sonadi	Vembur		Changathangi
Pattanwadi	Coimbatore		
Muzzafarnagri	Nilgiri		
Jalauni	Ramnad white		
Hissardale	Madras red		
	Tiruchy black		
	Kenguri		

source - CSWRI, Avikanagar.

ANNEXURE - IV b

WOOL PRODUCTION AND QUALITY IN DIFFERENT REGIONS OF INDIA

Sr. No.	Particulars	North	North Western	Southern Temperature	Eastern Peninsular
1	Sheep population (million)	20.36	3.45	'19.80	4.6
2	Percent contribution	42.23	7.15	41.07	9.54
3	Wool production (m.kg)	25.11	4.03	7.68	1.57
4	Percent contribution to total	'65.40	'10.50	'20.00	'4.10
5	Per capita production (kg)	1.23	1.16	0.38	0.34
6	Fineness (micron)	30.45	22.3	'40.60	'50-60
7	Medullation (%)	'30.80	5.15	'60.80	'80-90
8	Burr content (%)	2-5	2-8	Below 5	1-3
9	Yield (washed) (%)	'80-90	'50-60	'80-90 (except Nilgiri)	'85-90

Source - CSWRI, Avikanagar.

Annexure V

TRAINING INSTITUTIONS IN SHEEP FARMING

- i) Central sheep and wool Research Institute, Avikanagar (Rajasthan).
- ii) Central sheep and wool Research Institute (sub-station), Bikaner (Rajasthan).
- iii) Central Sheep and Wool Research Institute (sub-station) Garsa (Himachal-Pradesh).
- iv) Sheep and wool training centres - established by Department of Animal Husbandry in respective states.

ANNEXURE - VI

Economics of Sheep rearing (20 Ewes + 1 Ram)

A. Unit cost of Sheep Development for Meat and Wool

i. Cost of 20 ewes @ Rs. 1200/-	Rs. 24000
ii. Cost of 1 ram @ Rs. 1600/-	Rs. 1600
iii. Cost of Shed, equipment and miscellaneous expenditure.	Rs. 3000
iv. Total Cost	Rs. 28600
v. Margin at 15% of the Total Cost	Rs. 4300
vi. Loan Amount	Rs. 24300

B) Techno economic parameters

Veterinary expenses have been assumed as adult Rs10, young Rs.5/-

1. The present unit cost of one year Ewes and ram is taken at Rs 1200 and Rs.1600 respectively.
2. Lambing interval is taken as 12 months with lambing percentage of 75 and sex ratio of 50:50.
3. Mortality is considered as 10 % and 5 % among lambs and adults.
4. All female lambs are retained in the flock and males are sold at 8 to 9 months of age.
5. The culling rate among ewes is 20 % and above from third year onwards.
6. Grazing charges @ Rs 4/- per adult per year.
7. Cost of concentrate feed per pregnant Ewe for 30 days @ 250 gms/animal costing Rs 5.00/kg.
8. Insurance is 4 % per year and cost of veterinary aid is Rs 10 & 5 per adult and young animal per year.
9. Shearing will be done twice a year. The adult sheep will yield 1.2 kg wool per year and the lamb will yield 600 gm. per year. The shearing charges are Rs 2.00/kg and the price of wool is Rs 40 per kg.

10. Sale price is Rs. 800 per ram lamb, Rs.1000 per adult ewe and RS. 1200 per adult ram. The sale value of closing stock is considered for working out cash flow analysis.

11. Penning charges are Rs 8 per adult animal per month for 6 months in a year.

12. The economics have been worked out basing on the opening stock.

C. FLOCK ROJECTION CHART OF SHEEP DEVELOPMENT SCHEME (20+1)

BREED-MACHERI STATE - TAMILNADU

Lambing (%) : 75, Adult mortality (%) : 5, Lamb mortality (%) : 10

Ewe culling Minimum 20 from third year onwards

Ram culling The old ram will be replaced after every two years by fresh purchase

Sale of lambs All female lambs will be retained and male lambs of 8-9 months will be sold

Lambing interval One year

R-Ram E-Ewe ML-Male lamb FL-Female lamb

D. CASH FLOW ANALYSIS

	Particulars	Years					
		I	II	III	IV	V	VI
I.	COSTS :						
a)	Capital cost	28600					
b)	Purchase of ram	--	--	1600	--	1600	--
c)	Feed cost						
	i) Grazing	84	80	104	108	118	120
	ii) Concentrate	562	675	750	712	787	825
d)	Insurance cost	1024	928	1024	1022	1120	1168
e)	Veterinary aid	265	250	250	275	805	310
f)	Shearing charges	50	64	76	85	90	95
	Total cost	30585	1920	3804	2252	4048	2518
II	BENEFITS :						
a)	Sale of Wool	1512	1164	1668	1716	1716	1740
b)	Sale of ram		4800	4800	6300	6400	8000

	lambs							
c)	Sale of culled animals		--	--	5200	5020	8200	8000
d)	penning charges		1008	960	1247	1295	1392	1440
e)	Closing stock value							50200
	Total benefits		2520	6924	12915	13145	17708	69300
	Nt Benefits		-28065	5004	9111	10893	13660	66862
III	BCR, NPW and IRR							
	NPV 15%							
	Costs	34937						
	Benefits	62233						
	NPW	27296						
	IRR %	40						

Sheep rearing – Repayment schedule

Bank Loan Rs.24300

Interest Rate 12 %

IV	REPAYMENT SCHEDULE						
a)	Gross surplus	535	5004	9111	10893	13690	66862
b)	Loan amount	24300					
c)	Interest rate	12%					
d)	Interest	2916	3266	2880	2460	1800	960
e)	Principal	--	300	4000	5000	7000	8000
f)	Repayment	--	3566	6880	7400	8800	8960
	Balance *Principal		24000	20000	15000	8000	-
g)	Net surplus	--	1438	2231	3493	4890	58202

ANNEXURE - VII 'a'

Nutrient requirement for growing lambs

Body wt (kg)	Rate of gain (g/day)	Dry matter intake (g)	DCP (g)	ME (k.cal)	Ca (g)	P (g)
10	50	400	35	0.86	2	1.5
	100	450	45	1.00	2.5	2.5
	150	500	55	1.15	3.0	2.0
15	50	500	45	1.08	2.8	2.0
	100	600	55	1.30	3.5	2.5
	150	700	65	1.62	4.5	3
20	50	700	50	1.44	3.5	2.5
	100	800	70	2.01	4.5	3.0
	150	1,000	80	2.30	5.5	3.5
25	50	800	65	1.80	4.5	3.0
	100	1,200	85	2.52	5.0	3.5
	150	1,400	100	2.88	6.0	4.0

1g = TDN = 3.6 k Cal

ANNEXURE - VII 'b'

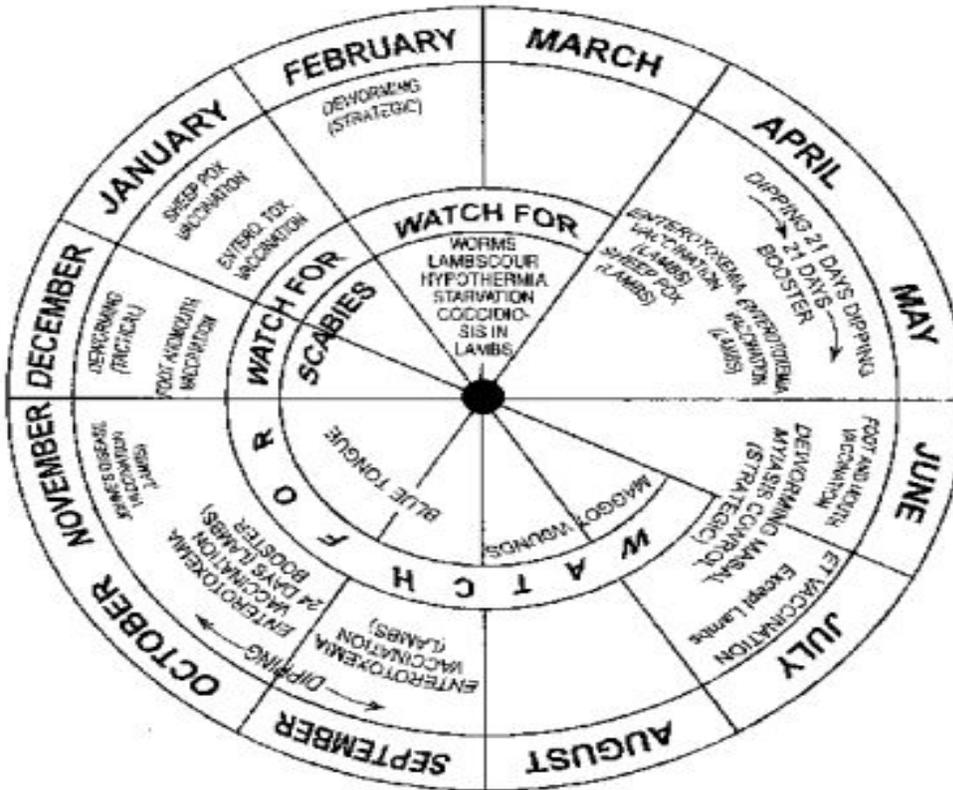
Nutrient requirement of sheep* for maintenance.

Body wt.	Dry matter intake (kg)	DCP (g)	ME (k.Cal)	Ca (g)	P(g)
20	0.56	25	1.03	1.7	1.0
25	0.70	31	1.27	2.1	1.6
30	0.83	37	1.52	2.4	1.9
35	0.95	42	1.72	2.6	2.1
40	1.06	47	1.93	2.9	2.3
45	1.17	51	2.09	3.2	2.5

**Adult ewes which are non-lactating and are not over of 15 week of gestation period*

Annexure VIII

SHEEP FLOCK HEALTH MANAGEMENT CALENDAR



Regular monitoring of Worm Burden is done through faecal examination and at post mortem examination.

Source: Developed by the Division of Animal Health, CSWRI, Avikanagar.