Evaluation of Central Sector – Central Sheep Breeding Farm, Hissar

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Foreword

Sheep and goat development activities in India were undertaken since early 19th century and given impetus after independence. These activities mainly comprised of selective breeding within the indigenous breeds and cross breeding them with exotic fine breeds. To promote such activities, the Government of India set up several institutes to undertake applied research in sheep production and wool utilization. One such initiative was the establishment of Central Sheep Breeding Farm, Hissar, in 1968-70 in collaboration with Government of Australia to upgrade sheep flocks and improve quality of production of wool. The farm also began to maintain a unit of Beetal goat since 2003.

An evaluation of the Central Sheep Breeding Farm, Hissar, was felt necessary by the Ministry of Agriculture, Government of India in order to observe if the objectives for which the farm was set up are being fulfilled. Accordingly, the evaluation study was undertaken by the AER Centre of our Institute.

The main findings of the study revealed that out of all states, it was mainly Karnataka state which purchased crossbred rams and Beetal goats from Hissar farm. The beneficiaries were satisfied with the breed which enabled them to improve the quality and quantity of their stock by cross breeding. Further, the training programmes conducted by Hissar farm also enabled them to improve management practices and reduce mortality. Wool production was however not satisfactory.

From the Livestock census(2012), it is observed that only 5.81 percent of sheep population are crossbred and therefore there is need to increase this population. The Central Sheep Breeding Farm, Hissar is a step in this direction. However this farm is facing limitations on all fronts-technical manpower, infrastructure, unviability of operations and insecure lease period. If the government is unable to rehabilitate the Hissar farm, the solution lies in promoting state farms with suitable breeds coupled with extension services, so that scale of operations can increase. This will help the country to achieve self-sufficiency in meat and wool.

I thank Sangeeta Shroff and Jayanti Kajale for undertaking this study on behalf of the centre.

October, 2015

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A visit was made to Central Sheep Breeding Farm, Hissar and entire data on the functioning of the farm was obtained. i thank Mr. Malhotra who had additional charge as Director of the farm for his cooperation in readily making available the necessary data that was required. Our thanks are also to his staff for cooperation. Dr. B.S. Rajpurohit also showed keen interest in the study and participated in discussions. i thank him for the same.

Field visit was conducted in Karnataka and our sincere thanks to officials of Karnataka Sheep and Wool Development Corporation, notably Mr. Mohan Kumar for helping us to interview the beneficiaries of the scheme. We greatly appreciate his enthusiasm and involvement in our work and also thank the sample farmers for responding to our questionnaire.

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Introduction

1.1 Backdrop

Sheep development activity in India was undertaken since early 19th century by the East India Company, which imported exotic breeds for cross breeding with indigenous breeds. Subsequently, with the establishment of the Imperial (now renamed as Indian) Council of Agricultural Research in 1929, research and development programmes were taken up in major sheep rearing states. These activities mainly comprised of selective breeding within the indigenous breeds and cross breeding them with exotic fine wool breeds. After the country attained independence and embarked on its planning process, sheep development was given impetus. During the Third Plan period (1961-62 to 1965-66) a large number of sheep and wool extension centres were established, and a wool grading and marketing programme was initiated in Rajasthan. In 1962, realizing the importance of sheep in an agrarian economy, the Central Sheep & Wool Research Institute was established in Rajasthan with Regional stations under an UNDP/Government of India project. The main purpose of this project was to undertake fundamental and applied research in sheep production and wool utilization and also to provide post graduate training in sheep and wool sciences. Another major initiative in 1968-70 was the establishment of Central Sheep Breeding Farm, Hissar in collaboration with the Government of Australia to upgrade the sheep flocks and improve the quality of production of wool. The farm was involved in pure breeding of Corriedale sheep and Corriedale stud rams were distributed from this farm to a number of states for cross breeding to improve wool and mutton production. Seven more such farms were established in Jammu and Kashmir, Uttar Pradesh, Madhya Pradesh, Bihar, Andhra Pradesh and Karnataka, to produce exotic pure- bred or cross-bred rams. During the Fifth Plan period, a large number of breeding farms were established to strengthen sheep rearing, produce genetically superior breeding stocks and also to adopt scientific sheep shearing and wool grading. In addition a number of sheep development programmes were undertaken under specialized programmes such as Drought Prone Area Programme, and Wool boards were set up in important wool producing states.

The National Commission on Agriculture (1976) reviewed the sheep and goat development activities and recommended that in addition to genetic improvement, equally important is proper health protection, development of feed and fodder resources through silvi-pasture, organization and extension activities for the transfer of improved sheep production technology to the farmers and finally organized marketing of live animals and wool (http://www.fao.org)

Besides sheep, goats are also important species of livestock for India. They contribute greatly to the agrarian economy, especially in areas where crop and dairy farming are not economical. Goat farming also plays an important role for the livelihood of small and marginal farmers as well as landless laborers. Some state governments distribute bucks of superior indigenous breeds and there is continuous effort for cross breeding indigenous goats.

1.2 Central Sector-Central Sheep Breeding Farm, Hissar:

It can be observed from the above, that the government initiated several schemes in the livestock sector including sheep and goat rearing. One such scheme was Central Sector-Central Sheep Breeding Farm, Hissar, which was established in 1968-70, in collaboration with the Government of Australia under Colombo Plan. This farm was initially set up on 6477 acres of land, leased by the Government of Haryana to Government of India, for a period of 20 years. Although the lease has been renewed again, the Government of Haryana took back about 4028 acres of land (pastures/grazing land), in May 1997, and also increased the rent. Presently the land available with the farm is 2456 acres and the lease will expire in July 2015.

- ***Objectives of the Farm***

The original technical programme of this project until the Sixth Plan period (ending 1984-85) was pure breeding of Corriedale sheep imported from Australia. The main objectives of importing sheep from Australia were:

1. To produce large number of cross bred rams for distribution to the sheep raising areas of India;

2. To set up extension and training programme to ensure the best use of rams produced;

3. To ensure suitable management and requisite facilities for breeding and rearing under Indian conditions and using purely Indian resources.

To fulfill the above objectives, about 500 Corriedale sheep, 50 Merino rams, 11 Dorset rams and 299 ewes were imported from Australia. However, these imported animals were unable to adapt to the environmental conditions in the farm and therefore their survival rate was poor. Accordingly, there was alteration in the initial programme and shift in National Policy for sheep breeding. The imports of sheep from Australia was stopped and substituted by imports from USA. Hence, instead of importing dual purpose Corriedale from Australia, the country began to import fine wool Rambouillet breed from USA. Further, a unit of Beetal goats was introduced in the farm in October 2003. Hence besides concentrating on sheep development, the Hissar farm also began maintaining a flock of goats.

After observing government initiatives for sheep and goat development, especially with respect to Central Sheep Breeding (CSBF), Hissar, it is important to note the status of population of sheep and goat in the country and also the products made by them, viz. wool and meat.

1.3 Status of Sheep and Goat Population in India :

From the Livestock Census conducted every five years, the status of sheep and goat population can be observed since the period of planning in India. It is also important to know the state wise population and the variety of breeds over time.

1.3.1 Census wise Sheep and Goat Population :

The census wise population of sheep and goat in India is presented in Table 1.1. It can be observed that from 1951 to 1977 there was only a negligible increase in sheep production. Infact according to the 1972 and 1987 census there was decline in sheep population compared to the previous census. From 2003 census to 2007 census, the sheep population increased by 16.4 percent but again declined by 9.2 percent in 2012.This pattern is observed from census wise average annual growth rate growth figures also. With respect to goats also, the increase across different census was often negligible. The greatest increase in goat population was from 1977 census to 1982 census when the goat population increased by 19.6 million or 26 percent. Between 2007 and 2012 census, the goat population declined by 3.84 percent.

Table 1.1: Census wise Number and Growth Pattern of Livestock Population (Sheep and Goats) (Number in Million, growth in Percent)

Species/ Year	1951	1956	1961	1966	1972	1977	1982	1987	1992	1997	2003	2007	2012
Sheep	39.1	39.3	40.2	42.4	40.0	41.0	48.8	45.7	50.8	57.5	61.5	71.6	65.0
% increase from previous census	-	0.5	2.3	5.5	-5.6	2.5	19.0	-6.4	11.1	13.2	6.9	16.4	-9.2
Annual Growth Rate (% per annum)		0.10	0.45	1.07	-1.16	0.50	3.53	-1.29	2.13	2.61	1.12	3.87	NA
Goat	47.2	55.4	60.9	64.6	67.5	75.6	95.2	110.2	115.3	122.7	124.4	140.5	135.2
% increase from previous census	-	17.3	9.9	6.1	4.5	12.0	26.0	15.7	4.6	6.4	1.4	13.0	-3.84
Annual Growth Rate (% per annum)		3.26	1.91	1.19	0.88	2.29	4.73	2.96	0.90	1.26	0.22	3.10	NA

Source: Livestock Census, Department of Animal Husbandry, Dairying and Fisheries, Ministry of Agriculture, Government of India.

1.3.2 State- Wise Sheep and Goat Population in India:

After observing the change in sheep and goat population, it is important to note the states in which it is concentrated. Accordingly, in Table 1.2 (A&B) and 1.3 (A&B) the state wise population of sheep and goat is presented respectively. It can be seen that the highest sheep population is concentrated in the state of Andhra Pradesh (40.57 percent), followed by Karnataka (14.73 percent), Rajasthan (13.95 percent) and Tamil Nadu (7.36 percent) in 2012. These four states together constitute about three-fourths of the sheep population of the country. Among these four states, Tamil Nadu is the state where sheep population has declined by around 40 percent and other states have shown marginal changes. In many other states the decline in sheep and goat population is observed.

Table 1.2(A): State wise Sheep Population (Numbers in '000')

Sheep										
Sr. No	State	2003		2007		2012		Total		
		Cross bred	Indigenous	Cross bred	Indigenous	Cross bred	Indigenous	2003	2007	2012
1	Andhra Pradesh	380	20996	16	25523	53	26342	21376	25539	26396
2	Assam	1	169	2	352	9	509	170	354	518
3	Bihar	84	298	11	208	9	223	382	219	232
4	Chattisgarh	2	119	1	140	2	166	121	141	168
5	Goa	0	0	0	0	0	0	0	0	0
6	Gujarat	1770	291	14	1988	26	1682	2061	2002	1708
7	Haryana	70	563	24	577	52	311	633	601	363
8	Himachal Pradesh	143	783	200	702	305	500	926	902	805
9	Jammu &Kashmir	2002	1408	2453	1674	2315	1074	3410	4127	3389
10	Jharkhand	16	664	3	481	8	575	680	484	583
11	Karnataka	12	7244	18	9540	40	9543	7256	9558	9584
12	Madhya Pradesh	120	426	8	382	14	295	546	390	309
13	Maharashtra	52	3042	11	2899	72	2509	3094	2910	2580
14	Orissa	12	1608	0	1818	11	1571	1620	1818	1581
15	Punjab	71	149	23	185	30	99	220	208	129
16	Rajasthan	66	9988	54	11135	91	8989	10054	11189	9080
17	Tamil Nadu	769	4825	755	7236	498	4288	5594	7991	4787
18	Uttar Pradesh	38	1399	32	1155	82	1272	1437	1187	1354
19	Uttara Khand	90	206	88	203	128	241	296	291	369
20	West Bengal	23	1502	11	1566	25	1051	1525	1577	1076
21	Others	6	58	6	64	10	48	64	70	58
All India		5727	55746	3730	67830	3781	61289	61473	71560	65070

Source: Livestock Census, Department of Animal Husbandry, Dairying and Fisheries, Ministry of Agriculture, Government of India.

Table: 1.2 (B): State Wise Percentage share of Sheep Population

Sheep										
Sr. No	State	2003		2007		2012		Total		
		Cross bred	Indigenous	Cross bred	Indigenous	Cross bred	Indigenous	2003	2007	2012
1	Andhra Pradesh	6.64	37.67	0.43	37.63	1.41	42.98	34.78	35.69	40.57
2	Assam	0.02	0.30	0.05	0.52	0.25	0.83	0.28	0.49	0.80
3	Bihar	1.47	0.53	0.29	0.31	0.24	0.36	0.62	0.31	0.36
5	Chattisgarh	0.03	0.21	0.03	0.21	0.05	0.27	0.20	0.20	0.26
4	Goa	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	Gujarat	30.91	0.52	0.38	2.93	0.69	2.74	3.35	2.80	2.62
7	Haryana	1.22	1.01	0.64	0.85	1.37	0.51	1.03	0.84	0.56
8	Himachal Pradesh	2.50	1.40	5.36	1.03	8.07	0.82	1.51	1.26	1.24
9	Jammu &Kashmir	34.96	2.53	65.76	2.47	61.24	1.75	5.55	5.77	5.21
10	Jharkhand	0.28	1.19	0.08	0.71	0.22	0.94	1.11	0.68	0.90
11	Karnataka	0.21	13.00	0.48	14.06	1.07	15.57	11.80	13.36	14.73
12	Madhya Pradesh	2.10	0.76	0.21	0.56	0.37	0.48	0.89	0.55	0.47
13	Maharashtra	0.91	5.46	0.29	4.27	1.89	4.09	5.03	4.07	3.97
14	Orissa	0.21	2.88	0.00	2.68	0.28	2.56	2.64	2.54	2.43
15	Punjab	1.24	0.27	0.62	0.27	0.78	0.16	0.36	0.29	0.20
16	Rajasthan	1.15	17.92	1.45	16.42	2.41	14.67	16.36	15.64	13.95
17	Tamil Nadu	13.43	8.66	20.24	10.67	13.18	7.00	9.10	11.17	7.36
18	Uttar Pradesh	0.66	2.51	0.86	1.70	2.17	2.07	2.34	1.66	2.08
19	Uttara Khand	1.57	0.37	2.36	0.30	3.37	0.39	0.48	0.41	0.57
20	West Bengal	0.40	2.69	0.29	2.31	0.66	1.72	2.48	2.20	1.65
22	Others	0.10	0.10	0.16	0.09	0.27	0.08	0.10	0.10	0.09
All India		100	100	100	100	100	100	100	100	100

Source : calculated from Table 1.3.2

In Table 1.3, the state wise share of sheep population according to breed is indicated. It can be observed from the table that out of total sheep population in India, 94.19 are indigenous (2012). Further the share of indigenous sheep increased from 2003 to 2007 census by 4 percent while share of crossbred sheep declined from 9.32 percent to 5.21 percent. This however, is not a positive feature with respect to sheep farming as the main aim of government initiatives is to develop high quality breeds which perform better in terms of output.

Table 1.3: State wise share of Crossbreed and Indigenous sheep (Percentage)

Sr. No	State	Crossbred			Indigenous		
		2003	2007	2012	2003	2007	2012
1	Andhra Pradesh	1.78	0.06	0.20	98.22	99.94	99.80
2	Assam	0.59	0.56	1.83	99.41	99.44	98.17
3	Bihar	21.99	5.02	3.93	78.01	94.98	96.07
5	Chattisgarh	1.65	0.71	1.07	98.35	99.29	98.93
4	Goa	0.00	0.00	0.00	0.00	0.00	0.00
6	Gujarat	85.88	0.70	1.53	14.12	99.30	98.47
7	Haryana	11.06	3.99	14.26	88.94	96.01	85.74
8	Himachal Pradesh	15.44	22.17	37.92	84.56	77.83	62.08
9	Jammu &Kashmir	58.71	59.44	68.31	41.29	40.56	31.69
10	Jharkhand	2.35	0.62	1.44	97.65	99.38	98.56
11	Karnataka	0.17	0.19	0.42	99.83	99.81	99.58
12	Madhya Pradesh	21.98	2.05	4.50	78.02	97.95	95.50
13	Maharashtra	1.68	0.38	2.78	98.32	99.62	97.22
14	Orissa	0.74	0.00	0.67	99.26	100.00	99.33
15	Punjab	32.27	11.06	23.03	67.73	88.94	76.97
16	Rajasthan	0.66	0.48	1.00	99.34	99.52	99.00
17	Tamil Nadu	13.75	9.45	10.41	86.25	90.55	89.59
18	Uttar Pradesh	2.64	2.70	6.06	97.36	97.30	93.94
19	Uttarakhand	30.41	30.24	34.58	69.59	69.76	65.42
20	West Bengal	1.51	0.70	2.30	98.49	99.30	97.70
21	Others	9.38	8.57	17.75	90.63	91.43	82.25
All India		9.32	5.21	5.81	90.68	94.79	94.19

Source: Livestock Census, Department of Animal Husbandry, Dairying and Fisheries, Ministry of Agriculture, Government of India

From Table 1.4 (A and B), it can be observed that the goat population increased from 2003 to 2007 census by 13 percent. However, it declined by 4 percent from 2007 to 2012 census. The highest goat population was observed in Rajasthan (16.03 percent), followed by Uttar Pradesh (11.53 percent), Bihar (8.99 percent) and West Bengal (8.5 percent). These four states together contribute 45 percent of goat population.

Table 1.4 (A): State wise Goat Population (Numbers in '000')

Sr. No	State	Goats		
		2003	2007	2012
1	Andhra Pradesh	6277	9626	9071
2	Assam	2987	4320	6169
3	Bihar	9490	10167	12154
5	Chattisgarh	2336	2768	3225
4	Goa	11	11	13
6	Gujarat	4541	4640	4959
7	Haryana	460	538	369
8	Himachal Pradesh	1125	1241	1119
9	Jammu &Kashmir	2055	2068	2018
10	Jharkhand	5031	6592	6581
11	Karnataka	4484	6153	4796
12	Kerala	1213	1729	1246
13	Madhya Pradesh	8142	9014	8014
14	Maharashtra	10684	10391	8435
15	Orissa	5803	7127	6513
16	Punjab	278	290	327
17	Rajasthan	16809	21503	21666
18	Tamil Nadu	8177	9275	8143
19	Uttar Pradesh	12941	14793	15586
20	Uttara Khand	1158	1335	1367
21	West Bengal	18774	15069	11506
22	Others	1581	1889	1894
All India		124357	140539	135173

Source: Livestock Census, Department of Animal Husbandry, Dairying and Fisheries, Ministry of Agriculture, Government of India

Table: 1.4: (B) State Wise Percentage share of Goat Population

Sr. No	State	Goats		
		2003	2007	2012
1	Andhra Pradesh	5.05	6.85	6.71
2	Assam	2.40	3.07	4.56
3	Bihar	7.63	7.23	8.99
5	Chattisgarh	1.88	1.97	2.39
4	Goa	0.01	0.01	0.01
6	Gujarat	3.65	3.30	3.67
7	Haryana	0.37	0.38	0.27
8	Himachal Pradesh	0.90	0.88	0.83
9	Jammu &Kashmir	1.65	1.47	1.49
10	Jharkhand	4.05	4.69	4.87
11	Karnataka	3.61	4.38	3.55
12	Kerala	0.98	1.23	0.92
13	Madhya Pradesh	6.55	6.41	5.93
14	Maharashtra	8.59	7.39	6.24
15	Orissa	4.67	5.07	4.82
16	Punjab	0.22	0.21	0.24
17	Rajasthan	13.52	15.30	16.03
18	Tamil Nadu	6.58	6.60	6.02
19	Uttar Pradesh	10.41	10.53	11.53
20	Uttara Khand	0.93	0.95	1.01
21	West Bengal	15.10	10.72	8.51
22	Others	1.27	1.34	1.40
All India		100	100	100

1.4 Status of Products from Sheep and Goat :

Sheep and Goat rearing is an important activity because of the products that they produce. It is therefore useful to look into the status of products produced by them. Wool is an important product from sheep breeding. Other products produced from rearing these animals are meat and milk.

1.4.1 Wool Production in India:

The wool production in India can be observed from Table 1.5

Table 1.5: Wool Production in India (million kgs)

Year	Wool Production	Percentage increase over previous decade
1950-51	27.5	
1960-61	28.7	4.4
1973-74	30.1	4.9
1980-81	32.0	6.3
1990-91	41.2	28.7
2000-01	48.4	17.5
2011-12	44.4	-8.3

Source: Department of Animal Husbandry, Dairying and Fisheries, Ministry of Agriculture, Government of India

It can be observed that the wool production showed a relatively larger increase in production in the decade of 1980s and 1990s. However, the production declined during the period 2000-01 to 2011-12.

The state-wise data on wool production reveal that the production of wool is highest in Rajasthan (28.56 percent), followed by Jammu & Kashmir (17.17percent), Karnataka (16.70 percent) and Andhra Pradesh (11.24). These states together contribute to nearly three-fourths of the wool production of the country.

Table 1.6: Share of States in Wool Production (Percentage)

State	Percentage share in wool production
Andhra Pradesh	11.24
Gujarat	6.79
Haryana	3.0
Himachal Pradesh	3.82
Jammu & Kashmir	17.17
Karnataka	16.70
Maharashtra	3.37
Rajasthan	28.56
Uttar Pradesh	3.59
West Bengal	1.64
Others	4.12

Source: Department of Animal Husbandry, Dairying and Fisheries, Ministry of Agriculture, Government of India

1.4.2 Meat Production in India and share of Sheep and Goat meat :

Meat production in India which was 1.9 million tonnes in 1998-99 increased to 5.5 million tonnes in 2011-12. The increase in production from 1998-99 to 2006-07

was rather slow but showed slight improvement from 2007-08. The production of meat in India is indicated in Table 1.4.3. It may be noted that total meat production includes poultry meat which normally constitutes around 45 percent of meat production. If poultry meat is excluded, then share of goat meat in total meat is approximately 33 percent while share of sheep meat is around 14 percent.

Table 1.7: Meat Production in India (million kgs)

Year	Meat Production	Sheep meat	% share of sheep meat in total meat	% share of sheep meat in total meat minus poultry meat	Goat meat	% share of goat meat in total meat	% share of goat meat in total meat minus poultry meat
1998-99	1.9	-	-	-	-	-	-
2006-07	2.3	-	-		-	-	-
2007-08	4.0	0.29	7.25	12.88	0.76	19	33.77
2010-11	4.8	0.37	7.7	14.17	0.84	17.5	32.18
2011-12	5.5	0.44	8.0	-	0.90	16.4	-

Source: Department of Animal Husbandry, Dairying and Fisheries, Ministry of Agriculture, Government of India

The state wise data on meat production is indicated in Table 1.4.4. It can be observed that with respect to sheep meat, Uttar Pradesh has highest share, followed by Andhra Pradesh and West Bengal. In case of sheep meat, Uttar Pradesh has the highest share (17.3 percent), followed by Andhra Pradesh (15.34 percent). With respect to goat meat, West Bengal had highest share which is about one-fourth of the country's production.

Table 1.8: State-Wise Percentage share in Meat Production

State	Percentage share in sheep meat production	Percentage share in goat meat production
Andhra Pradesh	15.34	8.2
Bihar	4.6	7.5
Haryana	6.5	0.6
Karnataka	2.5	3.0
Kerala	2.5	0.98
Maharashtra	11.6	7.25
Orissa	2.8	5.5
Tamil Nadu	9.5	3.4
Uttar Pradesh	17.3	0.34
West Bengal	11.85	26.5
Others	18.28	36.73

Source : Department of Animal Husbandry, Dairying and Fisheries, Ministry of Agriculture, Government of India

Another product emerging from goat is milk production. However, the share of milk from goats in total milk production is negligible and constitutes barely 3.7 percent of total milk production (2011-12).

1.5 Livestock Sector (Sheep &Goat) and Government Initiatives:

Animal husbandry is an important component of Indian agriculture and as much as 27.28 percent of gross domestic product from agriculture and allied activities comes from livestock sector. Livestock sector grew at an annual rate of 5.3 percent during 1980s, 3.9 percent during 1990s and 3.6 percent during 2000s (Working Group of Animal Husbandry, 2012-17). As is already observed from table 1.5 the growth rate in sheep and goat population has never been too high and in fact been negative in some periods or negligible.

Wool production also did not gather much momentum in the first few decades of the plan period and in the recent past it declined from 48.4 million kgs in 2000-01 to 44.4 kgs in 2011-12. Goat meat has also remained less than one million kgs. till date.

It was mentioned earlier that various government programmes were initiated to promote sheep development activities and one major programme was the setting up of Central Sheep breeding farm at Hissar, Haryana with the primary aim to produce exotic fine wool rams to be distributed to the seven large State Sheep Breeding Farms which in turn were mandated to produce cross bred rams to be distributed to the farmers for improving wool production and quality of their sheep. The farm was established in 1968-70, i.e during the Fourth Plan Period and it is more than four decades since this farm has been in operation. An evaluation of this Central Sector-Central Sheep Breeding Farm (CSBF), Hissar, Haryana was therefore felt necessary by Department of Animal Husbandry, Dairying and Fisheries, Government of India, in order to understand the progress as well as limitations in its functioning. Accordingly this study was undertaken.

1.6 Objectives of the Study:

The Terms of Reference for evaluation of CSBF, Hissar as indicated by the Department of Animal Husbandry, Dairying and Fisheries, Government of India, are:

1. To assess the flock strength and physical status of land, buildings, machinery, terms of lease and critical gaps in infrastructure;

2. To note the status of personnel, both skilled and unskilled, technical and non-technical staff and assessment of their efficiency on the farm;

3. To analyse the budget of the scheme; the economic viability of the production of rams and bucks and also observe if the budget is justified to meet the objective of the scheme;

4. To look into the biosecurity measures on the farm;

5. To assess the impact of the training programmes provided to beneficiaries

6. To assess the utilization or performance of rams and bucks distributed by the farm;

7. To note whether the farm could fulfill the objectives of the scheme

8. To suggest policy implications and recommend measures to make the farm centre of excellence and centre of profit.

1.7 Methodology:

The study is based on primary and secondary data. Data regarding functioning of the scheme has been obtained from CSBF, Hissar and secondary data on status of sheep and goat population as well as their products was obtained from Department of Animal Husbandry, Dairying and Fisheries, Ministry of Agriculture, Government of India.

Primary data on impact of CSBF, Hissar on breeding was collected from beneficiaries in Karnataka. The impact of training programmes conducted by CSBF was collected from beneficiaries in Karnataka and Haryana. Karnataka Sheep and Sheep Products Development Board was established in 1975 to oversee the welfare of sheep and sheep farmers in the state and was converted to Karnataka Sheep and Wool Development Corporation (KSWDC) with effect from 5-12-2001. The corporation implements several state as well as central government programmes and has 6 sheep breeding centres across various districts. Out of total rams distributed to Karnataka by CSBF, Hissar, about 454 rams were distributed through KSWDC to beneficiaries across the state in 2013-14. The sample selected in this study included beneficiaries

from various villages located in Tumkur, Ramanagar and Chikkaballapur districts located in the Bangalore division for both Rambouillet rams as well as Beetal goats. Discussion with the officials of KSWDC revealed that there is comparatively greater demand by the farmers for Rambouillet breed in this particular region than those in the northern districts of Karnataka. It was also reported that these farmers are more progressive and innovative. Tumkur district has highest sheep population which is mainly concentrated in Sira taluka. Hence beneficiaries from Sira taluka were selected. Also in Kanakpura taluka of Ramanagar district the head office of Bangalore Urban and Rural Districts Breeders Association is located. The number of sheep breeders who are members of this association is 1250. It was reported that the members are more progressive and have been regularly purchasing Rambouillet rams and Beetal goats from CSBF, Hissar. In the year 2013-14, nearly 75 sheep were supplied through KSWDC to this association. Hence around 20 beneficiary members of this association were randomly selected for assessing the impact of Rambouillet breed. Progressive sheep breeding beneficiaries were also selected from Chintamani taluka of district Chikkaballapur. These were breeders with relatively larger flock size and those who stall-feed the animals. In all, 30 beneficiaries from the above mentioned districts in Karnataka were randomly selected to study extent of breeding due to purchase of Rambouillet rams and Beetal goat. The reference year for the study was 2013-14. A well designed questionnaire was framed and addressed to sample beneficiaries in order to understand the impact of the scheme in fulfilling its main objective of increasing supply of rams/bucks.

An important objective of setting the CSBF was to conduct extension and training programme so as to ensure that good quality rams are produced which can be further used for breeding and also mortality can be reduced. Accordingly two training programmes, viz Sheep Shearing Training Programme and Sheep Management and Production Training Programme are conducted and related to the entire management of sheep and goat. Accordingly, an attempt is also made to study the benefits of these training programmes on the beneficiaries. Therefore, a field survey was conducted in Hissar and Karnataka and about 30 beneficiaries were addressed with a questionnaire about the usefulness of these programmes.

1.8 Design of the study

In chapter 2, the flock strength of Central Sheep Breeding Farm is discussed while in chapter 3, the status of CSBF, Hissar is discussed. The expenditure and revenue of CSBF is indicated in chapter 4. The breeding potential of rams/bucks is attempted in chapter 5 and finally in chapter 6 the policy implications of CSBF, Hissar are presented.

Chapter 2

Flock Strength of Central Sheep Breeding Farm

2.1 Backdrop:

The Central Sheep Breeding Farm, Hissar, was established in 1968-70 in collaboration with the Government of Australia with the main objective of pure breeding of Corriedale sheep imported from Australia. However, the survival of the rams imported from Australia was low as the rams were unable to adapt to the environment conditions in the region. The Corriedale was then substituted by fine wool Rambouillet breed which was imported from USA. At present the main breed supplied by the farm is Corriedale * Sonadi rams and Rambouillet * Nali rams. Further, since October 2003, a unit of Beetal goats has also been introduced in the farm.

2.2 Sheep Strength at Central Sheep Breeding Farm, Hissar:

The farm provides high quality pastures so that maximum production can be available from sheep and lambs that are given high level of nutrition. A system of segregation is used to group sheep according to management and nutrition requirement. The sheep with high nutritional priority are grazed on legume pasture crops rather than cereals or grasses. The farm has dispensary for treatment of sheep and goat and also laboratory to conduct tests of the animals regularly. The year wise import as well as domestic purchase of different breeds of sheep by CSBF is indicated in Table 2.1. and the purchase of Beetal goat is presented in Table 2.2.

It can be observed from Table 2.1 that since 1985 only Rambouillet breed were imported from USA and the total number imported was 9875. Since Australian rams could not adapt to the local environment, their import had to be stopped. The scheme which was initially started mainly to develop cross bred rams for distribution to sheep raising states, diversified to Beetal goats in 2003. The number of goats purchased was 298 till September 2010(Table 2. 2). The tables show that about 500 Corriedale sheep, 50 Merino rams, 11 Dorset rams and 299 ewes were imported from Australia since 1979-80. The sheep strength in the farm from 1981-82 to 2014-15 is indicated in Table 2.3.

Table 2.1: Year wise Import /local Purchase of Breed of Sheep in CSBF, Hissar

(Number)

Sl. no.	Breed	Year	Male	Female	Total	Import/local purchase
1	Nali	1973	Nil	100	100	Local Purchase
2	Sonadi	1975	0	500	500	Local Purchase
3	Sonadi	1980	0	1000	1000	Local Purchase
4	Marino	1980	50	0	50	Import
5	Corridele	1980	0	500	500	Import
6	Rambouillet	1985	50	565	615	Import
7	Rambouillet	1986	55	961	1016	Import
8	Rambouillet	1987	156	909	1065	Import
9	Rambouillet	1988	209	1018	1227	Import
10	Dorset	1988	11	299	310	Import
11	Rambouillet	1989	281	1414	1695	Import
12	Rambouillet	1990	153	1017	1170	Import
13	Nali	1992	0	1008	1008	Local Purchase
14	Rambouillet	1993	173	916	1089	Import
15	Rambouillet	1995	278	1720	1998	Import

Source: Office of Central Sheep Breeding Farm, Hissar

Table 2. 2: Year wise Purchase of Beetal Goat Year in CSBF, Hissar

(Number)

Sl. No.	Breed	Year	Male	Female	Total	Purchase
1	Beetal	October/2003	9	104	113	Purchase
2	Beetal	March/2008	1	54	55	Purchase
3	Beetal	June/2009	4	60	64	Purchase
4	Beetal	September/2010	2	64	66	Purchase
	Total		16	282	298	Purchase

Source : Office of Central Sheep Breeding Farm, Hissar

It can be observed from table 2.3 that the sheep strength which had an opening balance of 6953 sheep in 1981-82, reached a peak of 9481 in 1988-89 showed fluctuations throughout the period and was 4839 in 2014-15 ongoing period. The opening balance was lowest in 2011-12 and was of the order of 3443. The birth has fluctuated from a high of 3772 in 2003-04 to a low of 1303 in 2007-08. The mortality percentage has also shown wide fluctuations ranging from 36 percent in 1992-93 to 8.13 in 2009-10. The major objective of the farm is multiplication and distribution of good quality animals. The table shows that in all, over a period of 35 years, 86282 births have taken place (on an average 2465 per year) and 27817 have been sold. On an average only 12

percent of the opening balance has been sold. The lambing percentage is indicated in Table 2.4. As indicated earlier, breeding in the farm is mainly Corriedale * Sonadi rams and Rambouillet * Nali rams.

The distribution of rams for further breeding is indicated in Table 2.5. In 2008-09 and 2009-10, in addition to rams, the farm also distributed ewes. The number of exotic breeds supplied was maximum at 483 in 2010-11, but in several years the number was negligible and during 2011-12 and 2013-14 no exotic rams was supplied. The number of crossbred rams supplied was maximum at 1295 in 2004-05 but the number has reduced to 646 in 2013-14.

In Table 2.6, the state-wise distribution of rams is indicated. It can be observed that several states have stopped buying rams from CSBF and the main buyer is Karnataka. From 2007-08, more than 70 percent rams were sold to Karnataka and in 2011-12 as much as 97.4 percent rams were purchased by Karnataka. This indicates that other states are sourcing their requirement for rams from elsewhere and not depending upon CSBF.

Table 2. 3: Sheep Strength (Number) at CSBF, Hissar (1981-82 to 30-06-2014)

Year	Opening Balance	Addition by Import	Birth	Culling	Sold	% of sold to opening balance	Transfer to States	Death	Mortality %
1981-82	6953		3233	52	644	9.26		1644	16.14
1982-83	7846		2799	541	254	3.24		2050	19.26
1983-84	7800		3213	115	742	9.51		2995	27.20
1984-85	7161	615	3611	386	1056	14.75		1999	18.56
1985-86	7946	1016	2598	681	781	9.83		1805	17.12
1986-87	8293		2542	677	880	10.61		2335	21.55
1987-88	6953	1375	3274	73	120	1.73		1928	18.85
1988-89	9481	1227	3119	576	230	2.43		3859	30.63
1989-90	9162	1695	3065	455	2521	27.52		3173	25.95
1990-91	7773	1170	3123	174	808	10.39	32	3162	29.02
1911-92	7890		2736	343	614	7.78		2461	23.16
1992-93	7208	1008	2221	443	404	5.60		3414	36.21
1993-94	6176	1089	2979	295	799	12.94	90	1348	14.72
1994-95	7712		3266	403	988	12.81		2001	18.23
1995-96	7586	2058	2957	371	1228	16.19	70	2216	21.02
1996-97	8716		3097	508	1069	12.26		2210	18.71
1997-98	8026		3170	991	924	11.51		1837	16.41
1998-99	7444		2409	401	794	10.67		2659	26.99
1999-00	5999		1891	567	581	9.68		1690	21.42
2000-01	5052		2788	362	419	8.29		840	10.71
2001-02	6219		2813	287	944	15.18		829	9.18
2002-03	6972		2776	270	1025	14.70		1576	16.17
2003-04	6877		3772	268	560	8.14		1192	11.19
2004-05	8629		2677	524	1420	16.46		1653	14.62
2005-06	7709		2142	617	884	11.47		1608	16.32
2006-07	6742		1483	1448	733	10.87		1001	12.17
2007-08	5043		1303	829	694	13.76		976	15.38
2008-09	3847		1832	276	863	22.43		486	8.56
2009-10	4054		1935	122	976	24.07		487	8.13
2010-11	4404		1355	179	1541	34.99		596	10.35
2011-12	3443		1734	205	950	27.59		436	8.42
2012-13	3586		1848	237	725	20.22		517	9.51
2013-14	3955		2387	276	646	16.33		581	9.16
2014-15	4839		134	NA	NA	NA		193	3.88

Source : Office of Central Sheep Breeding Farm, Hissar

Table 2.4: Lambing percentage (Lambs born/ ewes at the closing of year) on financial year basis

Finnacial Year	Corr.	Ram.	Dorset	Corr X Merino	Corr X Sonadi	Ram X Sonadi	Sonadi	Corri X Nali	Ram X Nali	Overall
1971	2.50									2.50
1972	73.10									73.10
1973	93.90									87.18
1974	39.60							92.90		42.49
1975	56.90						7.50	104.00		54.18
1976	101.00				81.20			30.00		98.33
1977	64.50				82.60			31.25		66.50
1978	69.40				58.80			72.70		67.27
1979	57.20				46.90			114.00		55.67
1980	67.20				97.50		2.60	13.11		56.75
1981	83.20			28.40	68.00			111.80		73.09
1982	74.90			71.00	74.40			60.50		71.78
1983	44.80			72.30	66.00			46.20		58.76
1984	103.50			56.00	66.10			46.30		67.69
1985	65.70	23.00		48.60	83.60			85.90		70.21
1986	55.00	27.60		40.30	70.00	33.40		76.20	41.0	57.22
1987	60.56	26.51		31.81	67.57	55.80		79.76	56.09	56.67
1988	72.22	41.04		44.44	65.06	52.75		86.12	52.17	57.33
1989	41.28	51.03	19.79	7.27	55.49	3.77		58.54	7.69	52.34
1990	96.61	53.78	65.62		70.06			25.71		61.08
1991	64.10	44.53			69.43			108.33		58.16
1992		44.62			67.08			56.62		58.11
1993		52.48								
1994		31.48			100.76			9.09	82.82	64.56
1995		50.90			85.70				98.65	75.75
01996		32.05			79.17				55.72	52.40
1997		45.09			48.18				62.75	61.65
1998		63.39			100.00				56.96	78.71
1999		55.95			78.33				65.46	68.49
2000		63.91			64.40				61.70	66.11
2001		27.25			97.68				90.66	
2002		50.42			92.40				93.41	89.55
2003		92.34			69.93				67.82	72.91
2004		66.87			88.25				84.75	85.18
2005		56.77			63.32				56.76	61.32
2006		55.29			48.52				48.89	49.37
2007		53.23			45.44				51.11	47.31
2008		47.21			53.07				57.75	53.46
2009		56.86			77.77				118.83	82.47
2009-10		63.17			79.06				79.38	98.43
2010-11					63.43				67.48	64.45
2011-12					75.42				97.13	80.79
2012-13					72.00				88.79	76.61
2013-14					99.41				91.97	97.12
2014-15										

Source: Office of Central Sheep Breeding Farm, Hissar

Note : Corr = Corriedale, Ram.= Rambouillet

Table 2.5 : Number of Exotic and Crossbreed Rams Distributed

Year	Exotic	Crossbreed	Total
1986-87	23 (2.94)	758 (97.06)	781 (100)
1987-88	18 (15.00)	102 (85.00)	120 (100)
1988-89	65 (28.26)	165 (71.74)	230 (100)
1989-90	69 (6.10)	1063 (93.90)	1132 (100)
1990-91	100 (12.38)	708 (87.62)	808 (100)
1991-92	147 (28.60)	367 (71.40)	514 (100)
1992-93	25 (9.62)	235 (90.38)	260 (100)
1993-94	267(33.93)	520 (66.07)	787 (100)
1994-95	122 (12.35)	866 (87.65)	988 (100)
1995-96	139 (14.21)	839 (85.79)	978 (100)
1996-97	151 (15.91)	798 (84.09)	949 (100)
1997-98	326 (35.28)	598 (64.72)	924 (100)
1998-99	51 (7.08)	669 (92.92)	720 (100)
1999-00	150 (24.27)	468 (75.73)	618 (100)
2000-01	4 (0.95)	415 (99.05)	419 (100)
2001-02	53 (5.61)	891 (94.39)	944 (100)
2002-03	95 (9.29)	928 (90.71)	1023 (100)
2003-04	121 (23.73)	389 (76.27)	510 (100)
2004-05	75 (5.47)	1295 (94.53)	1370 (100)
2005-06	119 (13.93)	735 (86.07)	854 (100)
2006-07	22 (3.00)	711 (97.00)	733 (100)
2007-08	58 (8.36)	636 (91.94)	694 (100)
2008-09	45 Rams+ 50 Ewes = 95 (11.01)	568 Rams + 200 Ewes = 768 (88.99)	863 (100)
2009-10	27 (2.77)	699 Rams + 250 Ewes = 949 (97.23)	976 (100)
2010-11	115 Rams + 368 Ewes = 483 (31.34)	778 Rams + 280 Ewes = 1058 (68.66)	1541 (100)
2011-12	5 (0.53)	945 (99.47)	950 (100)
2012-13	0	725 (100)	725 (100)
2013-14	0	646(100)	646 (100)

Source : Office of Central Sheep Breeding Farm, Hissar
Note : Figures in brackets are percentage to total

Table 2. 6 : State wise Distribution of Rams (Number)

Year	Haryana	Karnataka	Rajasthan	J&K	H.P	Punjab	UP	Maharashtra	Total
2003-04	352 (62.02)	30 (5.88)	0	0	128 (25.10)	0	0	0	510 (100)
2004-05	674 (49.20)	325 (23.72)	0	0	0	70 (05.11)	301 (21.97)	0	1370 (100)
2005-06	150 (17.56)	292 (34.19)	0	180 (21.08)	62 (07.26)	0	170 (19.91)	0	854 (100)
2006-07	220 (30.01)	0	1 (0.14)	90 (12.28)	22 (03.00)	100 (13.64)	300 (40.93)	0	733 (100)
2007-08	17 (02.41)	540 (77.81)	0	0	68 (09.80)	69 (09.94)	0	0	694 (100)
2008-09	72 (11.75)	431 (70.31)	0	0	30 (04.89)	0	80 (13.05)	0	613 (100)
2009-10	142 (19.56)	569 (78.37)	0	0	0	15 (02.07)	0	0	726 (100)
2010-11	59 (06.61)	758 (84.88)	0	0	58 (04.49)	0	0	18 (02.02)	893 (100)
2011-12	25 (02.63)	925 (97.37)	0	0	0	0	0	0	950 (100)
2012-13	75 (10.34)	540 (74.48)	0	0	110 (15.17)	0	0	0	725 (100)
2013-14	0	490 (75.48)	0	0	56 (08.67)	0	100 (15.48)	0	646 (100)

Source : Office of Central Sheep Breeding Farm, Hissar Note : Figures in brackets are percentage to total

2.3 Wool Production in Central Sheep Breeding Farm :

An important objective of CSBF is production of wool. In Table 2.7 the production of wool in the farm is indicated. Since the farm is dealing mainly with crossbred varieties, the production of wool per animal is higher than in case of indigenous breeds. While an indigenous sheep gives 800 grams of wool, crossbred sheep produce more than 1 kg . In some cases, the crossbred sheep give even 2 kg of wool. The total wool produced which was 18724 kg in 1997, declined to 5651 kg in 2013 with fluctuations over the years. The decline in production was obviously due to decline in sheep strength over the years. Clipping is normally done twice in a year and serves as a source of revenue for the farm. After shearing, the wool is weighted, sorted out according to quality and pressed by electrically operated pressing machine into specially made packs. These packs are then marked according to quality and stored for sale by public auction through a joint venture with the Haryana government.

Table 2. 7 : Wool Production on CSBF, Hissar

Sl.No	Year	Clipping (Kg.)		Total Weight in (Kg.)
		March/ April	Sept./ October	
1	1997	8493.0	10231.0	18724.0
2	1998	6029.5	6650.0	12679.5
3	1999	4939.0	5938.0	10877.0
4	2000	4388.5	7516.0	11904.5
5	2001	4904.5	8103.0	13007.5
6	2002	4990.5	7865.5	12856.0
7	2003	6977.0	5898.5	12875.5
8	2004	6111.5	10300.0	16411.5
9	2005	3596.5	5982.5	9579.0
10	2006	4216.5	4811.0	9027.5
11	2007	3550.0	4391.5	7941.5
12	2008	2710.0	3918.5	6628.5
13	2009	2703.0	4361.5	7064.5
14	2010	2539.0	2879.0	5418.0
15	2011	2315.0	3094.5	5409.5
16	2012	2524.0	3406.0	5930.0
17	2013	2359.0	3292.5	5651.5

Source : Office of Central Sheep Breeding Farm, Hissar

2.4 : Training Programmes by CSBF :

An important objective of setting up the CSBF was to conduct extension and training programme so as to ensure the best use of the rams produced. Accordingly, the scheme regularly conducts two training programmes, viz; Machine Shearing Training and Sheep Management Training.

Shearing Training Programme

The farm imparts shearing training courses for the leading veterinarian, para-veterinary staff and other workers engaged in the field of shearing from various government departments twice a year. These programmes are conducted in the month of Feruary/March and also in October/November for a period of two weeks and considered to be a certificate course. In this programme, training is imparted to farmers for uniform fleece/wool cut so that the quality of wool is improved. In Table 2.8, the number of such programmes conducted is indicated. Field camps are organized in various states.

It can be observed from Table 2.8 that maximum Sheep Shearing Programmes since last five years is conducted in the state of Haryana. Perhaps close proximity to the farm facilitates participants. In 2006-07, out of 192 training programmes conducted, as many as 106 or 55 percent were conducted in Jammu&Kashmir. However, in the following years, there were no programmes in Jammu &Kashmir. The number of programmes were maximum in 2011-12.

Table 2.8: State-wise Number of Sheep Shearing Training Programmes

Sr. No.	State	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
1	Haryana	21	12	13	25	76	366	126	92
2	Karnataka	2	-	-	-	2	-	-	-
3	Rajasthan	48	-	20	-	-	-	-	-
4	J & K	106	-	-	-	-	-	-	-
5	H.P	15	6	-	2	6	1	9	36
6	Uttar Pradesh	-	3	-	-	2	2	-	4
7	Uttaranchal	-	-	7	-	-	-	-	-
8	Punjab	-	-	2	-	4	-	-	-
9	Madhya Pradesh	-	-	2	21	-	-	-	-
10	Maharashtra	-	-	-	-	38	-	-	-
11	Gujarat	-	-	-	-	4	-	-	-
Total		192	21	44	48	132	369	135	132

Source : Office of Central Sheep Breeding Farm, Hissar

Sheep Management and Production Training Programme

The Sheep Management & Production Training Programme is a one week certificate course in collaboration with the Wool Board of Jodhpur and imparts training related to the entire management of sheep and goat. This programme is aimed at promoting the use of better germplasm and improving management techniques. It is useful to farmers who are engaged in sheep farming as a team of experts from the farm visit the local villages from time to time in order to solve problems related to sheep and goat rearing. The number of such programmes conducted is indicated in Table 2.9

It can be observed from Table 2.9 that Sheep Management and Production Training programmes are conducted mainly in Haryana. In 2011-12 such programmes were conducted only in Haryana. Many of the states have not participated in this programme in most of the years. Karnataka has also conducted such programmes though not in such a large number as in Haryana. Informative pamphlets about sheep management are distributed in these programmes informing the sheep farmers about appropriate feed, weight gain after birth, possible diseases, vaccination schedules, etc.

Table 2.9: State –Wise Number of Sheep Management and Production Training Programmes

Sr. No.	State	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
1	Haryana	63	274	407	488	189	475	433	248
2	Karnataka	-	119	95	38	63	98	-	81
3	Rajasthan	6	-	-	-	402	204	76	2
4	J & K	46	-	-	-	-	67	41	-
5	H.P	32	3	-	17	-	1	-	-
6	Delhi	550	200	91	-	-	-	-	200
7	Andhra Pradesh	-	17	-	2	-	-	-	-
8	Gujarat	-	-	40	35	-	-	-	-
9	Uttar Pradesh	-	-	-	7	-	2	-	-
10	Nepal	-	-	-	15	-	-	-	-
11	Punjab	-	-	-	1	-	-	-	-
12	Maharashtra	-	-	-	-	-	-	12	-
Total		697	613	633	603	654	847	562	531

Source : Office of Central Sheep Breeding Farm, Hissar

2.5: Goat strength at CSBF, Hissar :

As mentioned earlier, the CSBF was set up in 1968 for production of cross bred rams for distribution to the sheep raising regions of the country. Since October 2003, a unit of Beetal goats has been introduced in the farm. The state –wise distribution of Beetal bucks is indicated in Table 2.10

Table 2.10: Goat Strength at CSBF, Hissar

Year	Strength Opening Balance	Purchase	Birth	Sold	Culled and Suction	Death	Balance
2003-04		113	61			09	165
2004-05	165	0	91	63		29	164
2005-06	164	0	180	51	15	37	241
2006-07	241	0	97	88	10	33	207
2007-08	207	55	265	56	09	49	413
2008-09	413	0	280	100	17	92	484
2009-10	484	64	288	134	53	138	511
2010-11	511	66	325	79	27	150	646
2011-12	646	0	268	85	97	149	583
2012-13	583	0	342	122	28	112	663
2013-14	663	0	251	82	76	122	634
2014-15(ongoing)	634		117	11		30	710

Source : Office of Central Sheep Breeding Farm, Hissar

It can be observed from Table 2.10 that the balance goat strength at CSBF, Hissar is presently about 710 in 2014-15 and the same was 634 in 2013-14. The sale

of goats (beetal bucks) has not been very impressive and the number sold has ranged from 51 in 2004-05 to 134 in 2009-10.

The state wise distribution of bucks is indicated in table 2.11.

Table 2.11 : State wise Distribution of Number of Bucks

Year	Harya-na	Karna-taka	Rajas-than	J&K	H.P	Punjab	UP	Mahar ashtra	**Foreign Country**	Ker ala	Chhatt isgarh	M P	Tami lnadu	Tot al
2003-04	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2004-05	8	0	0	0	21	0	0	0	0	0	0	0	0	29
2005-06	11	8	0	32	0	0	0	0	0	0	0	0	0	51
2006-07	24	0	5	33	0	0	0	0	0	0	0	0	0	62
2007-08	8	0	3	18	0	0	0	0	5	0	0	0	0	34
2008-09	43	7	0	25	0	0	0	0	0	20	0	0	0	95
2009-10	50	44	0	5	0	0	0	35	0	0	0	0	0	134
2010-11	47	22		0	0	0	0	10	0	0	0	0	0	79
2011-12	28	0	0	0	0	12	5	0	0	0	40	0	0	85
2012-13	13	43	13	21	0	0	0	0	0	0	0	25	7	122
2013-14	5	50	0	11	16	0	0	0	0	0	0	0	0	82
2014-15 ongoing	1	0	0	0	0	0	10	0	0	0	0	0	0	11

Source : Office of Central Sheep Breeding Farm, Hissar

It can be observed the bucks are sold mainly in Haryana. In 2013-14, 62.5 percent were sold to Karnataka. Most of the other states hardly purchased beetal goats from CSBF, Hissar.

The kidding parentage of goats is indicated in Table 2.12. It can be observed that in some cases the kidding percentage is above 100 percent. In case of goats, it is quite common to have twins or triplets and hence the percentage may be above 100.

Table 2.12 : Kidding Parentage of Goat

Kidding Parentage of Goat				
Sl. No.	Year	Number of does put for breeding	Number of kidding does	percentage
1	2002-03	104	-	-
2	2003-04	103	91	87.5
3	2004-05	102	116	112.62
4	2005-06	105	92	90.19
5	2006-07	122	136	129.52
6	2007-08	212	194	159
7	2009-10	250	197	78.8
8	2010-11	275	238	86.54
9	2011-12	286	243	84.96
10	2012-13	309	271	87.7
11	2013-14	277	213	76.89

Source : Office of Central Sheep Breeding Farm, Hissar

Overall, the chapter clearly indicates the purchase/import of sheep and beetal goat to CSBF, Hissar . The lambing percentage, wool production and distribution of rams to various states is also observed. The training programmes conducted for sheep shearing and sheep management is also noted. The main activities of CSBF, Hissar are thus revealed in this chapter.

Chapter 3

Status of Central Sheep Breeding Farm

3.1 Backdrop :

The CSBF, Hissar which was set up in 1968-70 has an administrative machinery and also infra structure for its functioning. It is more than four decades since this scheme has been implemented and therefore it is important to assess whether the personnel as well as infrastructure are in tune with the requirements of the farm and how far the purpose of setting up this farm has been achieved. In this chapter therefore an attempt has been made to observe the infrastructure available in the farm and critical gaps, if any.

3.2 Status of Land :

As mentioned earlier, CSBF was established on 6477 acres of land, leased by the Government of Haryana for a period of 20 years (i.e. from 1st August 1968 to 31st July 1988) at the lease rent of Rs 1.00 per acre per annum. In May 1977, about 4028 acres of land (pasture/grazing) land was taken back by the Government of Haryana. At present, the total land available with the farm is 2456 acres. The lease has been renewed by mutual agreement with revision in rent at the rate of Rs 1100/- per acre per annum. Besides payment of rental charges, the CSBF is also liable to pay land revenue and all other taxes and cesses levied by law from time to time. As per lease agreement the land leased to CSBF cannot be further leased out to any other party.

As per lease agreement the premises of the CSBF can be used for the purpose of quality fodder seeds and crops as well as for sheep breeding and allied purposes. CSBF can also erect structures such as buildings, installations or other works. The fitting and fixtures, installed machinery, and equipment will be sold to the government of Haryana at depreciated book value. At the expiry of lease, the Central government will not be in a position to demand compensation for trees on the farm.

Discussions with officials at CSBF, Hissar reveal that the lease was only till July 2015. However, till date there is no update on any extension or termination.

Details of Land Available with the Farm :

As mentioned earlier, the total land available with the farm is 2456 acres or 994.5 hectares. The utilization of the land can be observed from Table 3.1.

Table 3.1 Status of Land Available with Central Sheep Breeding Farm, Hissar

Sr. No.	Details of land	Area (hectares)
1.	Total area of the farm	994.5
2	Total cultivable area of the farm	806.0
3	Irrigated area of the farm	500.0(62 percent)
4	Unirrigated/Rainfed area of the farm (Under cenchrus natural pasture)	306.0(38 percent)
5	Uncultivable area (sand dunes, low lying, jungle area)	27.0
6	Area under roads and channels	84.5
7	Area under buildings	77.0

Source : Office of Central Sheep breeding Farm, Hissar (unpublished)

3.3 Buildings and Machinery at CSBF, Hissar :

The CSBF which is spread on 2456 acres of land has physical infra structure in the form of buildings and machinery. In Table 3.3 the buildings in the CSBF are indicated.

Table 3.2: Sheds and Buildings at CSBF, Hissar

Sr. No.		Number
I	**Sheds**	
1	Sheep (lambing) sheds	07
2	Weaner shed	01
3	Treatment shed	None
4	Circular shed	01
II	**Buildings :**	
1	Administrative block	01
2	Workshop cum Central Store	01
3	Security Office	01
4	Agriculture Office	01
5	Sheep management Office	01
6	Dispensary cum Laboratory	01
7	Post Mortem Room	01
8	Incinerator room	01
9	Guest House	01
10	Farmers' Hostel (to accommodate 25 farmers)	01
11	Residential Quarters	65

Source : Office of Central Sheep Breeding Farm, Hissar

In addition to the above physical assets, the CSBF also has agricultural equipment indicated in Table 3..3.

Table 3. 3: Agricultural Equipment at CSBF, Hissar

Sr. No	Agricultural Equipment	Number
1	Tractors	3
2	Reaper Binder	2
3	Tube wells	4
4	Sprinkler Irrigation System	1
5	Water Supply Meter	2

Source : Office of Central Sheep Breeding Farm, Hissar

In addition to the above, the CSBF also has a school bus, three jeeps and a generator. Thus, it can be noted that the farm has essential physical infrastructure and machinery and vehicles to take care of administration of the animals and the human resources.

3.4 Technical and Non Technical Personnel in CSBF, Hissar :

The responsibility of the organization and management of the farm is with the Director who is assisted by technical and other staff responsible for agriculture operational work, grazing of sheep and mechanical work. To facilitate the smooth functioning of the farm the following sections are created :

(i) Administrative Section: The Institute enjoys a pioneer status under the Ministry of Agriculture (Department of Animal Husbandry, Dairying and Fisheries). The responsibility for overall organization and management of the farm is the responsibility of the Director. He is assisted by both technical and non-technical staff.

(ii) Sheep and Veterinary Section : This section is in charge of managing the flock. The utilization of fodder by various classes of sheep and goat has to be managed very carefully. A system of segregation has to be followed by this section to group sheep according to management and nutrition requirement. The incidence of disease among the flock has to be also checked.

(iii) Mechanical Section : The farm has a number of machines and agricultural equipment which need to be properly utilized and well maintained.

(iv) Agriculture Section : The role of the agricultural section is to plan crop production as well as forage production which is used for grazing of sheep.

(v) Security Section : This section is responsible for security/Bio-security of the farm from stray cattle and also supervise the duty of chowkidars posted at different points of the farm.

The staff position in CSBF is presently 219 although the sanctioned posts are 246. The present staff position is indicated in Table 3.4. It can be observed from Table 3.4.1 that positions in CSBF are lying vacant since long and some of these positions are very crucial for smooth functioning of the farm and its growth. First of all, the CSBF did not have a regular Director for several years and has been filled only in 2014. Hence the Veterinary Assistant Surgeon was given charge to perform duties as Head of Office. The statutory powers are exercised by the Deputy Secretary of the department. It is clear that without a full fledged director on the farm there is pressure on Head Office and further it could cause delay in taking important decisions as certain powers are not vested with the person In Charge. For, example if there is power failure or breakage of a machine, the expenditure involved can be sanctioned by Joint Commissioner who normally does not visit the farm. The appropriate decision is therefore delayed and smooth functioning of the farm is hampered. A full fledged Director has more financial power which enables him to run the farm smoothly. The Officiating Director who is also a Veterinary Assistant Surgeon has to spend a lot of time in administration and therefore does not have time for Research & Development.

Table 3.4 : Staff Position of CSBF, Hissar

Sl.No.	Name of Post -	Pay Band + Grade Pay	Sanctioned Strength	Staff in Position	No. of posts vacant	Remarks /period since vacant
	Technical					
1	Director	PB-3 15600-39100 + 7600	1	1	-	Filled in 2014 after long vacancy
2	Vety. Officer	PB-3 15600-39100 + 6600	1	-	1	27.4.2011
3	Vety. Asstt. Surgeon	PB-3 15600-39100 + 5400	2	1	1	01.10.12
4	Sr. Technical Asstt.	PB-2 9300-34800 + 4200	1	-	1	05.5.2007
5	Jr. Asstt. (SM)	PB-1 5200-20200 + 2800	1	1	-	-

6	Mechanic	PB-1 5200-20200 + 2400	1	-	1	01.05.2006
7	T.D.M.	PB-1 5200-20200 + 2400	4	3	1	01.10.12
8	Machineman	PB-1 5200-20200 + 2400	1	1	-	
9	Stockman	PB-1 5200-20200 + 2400	5	5	-	
10	Fieldman	PB-1 5200-20200 + 1900	2	2	-	
11	Telephone Operator	PB-1 5200-20200 + 1900	1	1	-	
12	C.B.S.	PB-1 5200-20200 + 1900	1	1	-	-
13	Jeep Driver	PB-1 5200-20200 + 1900	4	4	-	
14	Electrician	PB-1 5200-20200 + 1900	1	-	1	30.10.2012
15	Staff Car Driver	PB-1 5200-20200 + 1900	1	-	1	12.06.2012
16	Shearer cum-Supvor.	PB-1 5200-20200 + 1900	5	3	2	1.1.2013, 1.1.2014
17	Tractor Driver	PB-1 5200-20200 + 1900	7	7	-	
18	Shepherd	PB-1 5200-20200 + 1800	87	81	6	11.02.11, 25.07.12, 01.08.12, 04.08.12, 21.04.13, 01.05.13
19	Workshop Attendant	PB-1 5200-20200 + 1800	9	9	-	
20	Tractor Helper	PB-1 5200-20200 + 1800	16	15	1	01.12.2013
21	Beldar	PB-1 5200-20200 + 1800	51+	48	3	01.10.12, 1.1.2013 & 01.07.2013
22	**Non-Technical Admn. Officer *****	PB-3 15600-39100 + 5400	1	-	1	1.8.95.
23	Accountant	PB-2 9300-34800 + 4200	1	-	1	4.9.04 (VR)
24	Head Clerk	PB-2 9300-34800 + 4200	1	1	-	
25	Purchase Assistant	PB-2 9300-34800 + 4200	1	1	-	
26	U.D.C.	PB-1 5200-20200 + 2400	2	1	1	31.10.2009

27	Store Keeper	PB-1 5200-20200 + 2400	1	1	-	
28	L.D.C.	PB-1 5200-20200 + 1900	2	1	1	23.12.2009
29	Multi Tasking Staff.	PB-1 5200-20200 + 1800	37	38		*Excess.
30	Store Attendant	PB-1 5200-20200 + 1800	1	1	-	
	TOTAL:		**249**	**219**	**28**	

Source : Office of Central Sheep Breeding Farm, Hissar

Again the second position, i.e. Veterinary Officer is vacant since 27/4/2011 due to deputation of its incumbent and hence his duties are performed by Veterinary Assistant Surgeon with the help of two consultants engaged on contract basis. Normally the functions of Veterinary Officer include the overall management of Sheep and Veterinary Unit, assessing the requirement and purchasing of medicines and also of animals. The post of Senior Technical Assistant is also vacant.

Another important post that is vacant is that of sheep shearer cum supervisor. Although the number of such sanctioned posts is 5, only 2 posts are filled while 3 are vacant. The sheep shearer cum supervisor is responsible for movement of sheep, supervising of feeding, watering, dipping, drenching and first aid to animals, besides shearing the sheep. With respect to Beldar, out of 50 sanctioned posts, 4 are vacant. The duties of Beldar include land development by clearing the jungle for survey, actual survey, leveling out plots, bund construction, irrigation channel clearance, etc.

The post of Administrative Officer is a very important but is lying vacant since 1995 and this work is being performed by the Head of the Office with the help of the Head Clerk and Purchase Assistant.

Visit to the farm revealed that out of existing employees about 153 were given permanent employment due to intervention by court. This reveals that suitable labor laws were not in place for recruiting employees which led to large number of court cases.

It can be observed from above that some key positions in the CSBF are vacant which may inhibit expansion and smooth functioning of the farm. It is therefore clear

from the staff position that efficiency of both skilled and unskilled employees is constrained. At the higher level posts are lying vacant and hence additional charge is sometimes given to the existing staff which may be an additional burden on them. If there are less staff at the higher level, then suitable instructions cannot be given to the junior staff, which may cause underemployment of staff. Further, many staff were given employment only due to court intervention. This clearly indicates that the CSBF was forced to retain staff on permanent basis which was not required. The mismatch between technical and non technical staff and less staff at the higher level is bound to reduce efficiency of work on the farm.

3.5 Bio-Security of CSBF, Hissar :

Bio-Security is an integrated approach encompassing policy and regulatory frameworks to analyse and manage risks in the areas of animal health and food safety, contain diseases, environmental risks and also to avoid economic losses. An appropriate bio-security plan helps to prevent any disaster which will have a major adverse effect on the farm.

There are Standard Operating Procedures which act as a road map for keeping a close vigil on the farm and help to maintain bio-security. The following are the guidelines for maintaining bio-security at CSBF, Hissar :

1. Farm location and design :

The farm should be located at a well isolated site and ideally about 1-2 kilometers away from commercial facilities. The farm should have sufficient access to ventilation and sunlight and proper drainage facilities are needed to prevent stagnation of water. Some other measures include facility for post-mortem examination near the incinerators and a separate laboratory for surveillance of diseases at farm level. There should be single window system for sale of animals preferable near the gate.

2. Restricted access to sheep and goat :

There should be restriction in movement of sheep and goat at farm level, restricted entry of visitors and their vehicles, restriction to farm workers, prevent transmission of infection into the farm and also multiple species rearing.

3. Isolation and quarantine of new sheep:

Isolation and quarantine of new sheep and goat is necessary to prevent from infectious diseases. It should be ensured that sheep and goat of different age groups must be separated.

4. Cleaning and Sanitation :

There should be regular disinfection of farm equipments and sheds of sheep and goat. The equipment used must not be shared with other farms and the sheds must be completely disinfected and kept empty for a minimum period of 10 days before arrival of new herd.

5. Personal Hygiene :

Personal hygiene must be maintained since diseases can be easily transmitted. A regular medical checkup of all workers coming into contact with livestock should be undertaken.

6. Hygienic disposal of sheep and goat manure :

Use of sheep and goat manure in agriculture and aquaculture as fertilizer must be treated if used as a source of fertilizer or else can be the cause of infection. High risk farming practices such as use of contaminated water and recycling of sheep and goat waste without treatment must be completely avoided.

7. Disposal of dead sheep and goat :

The most appropriate way to dispose of the dead sheep and goat is by incineration.

8. Feed Safety :

It is necessary to maintain good manufacturing practices and careful monitoring of the pelletizing process so as to reduce the scope for infection. The feed should be pasteurized to eliminate bacteria.

9. Health Schedule and Vaccination of sheep and goat :

The health and vaccination schedule should be maintained so that the immunity of the herd is boosted. Unusual mortality and sickness of sheep and goat in the farm must be immediately reported to the Ministry.

10. Documentation and record keeping :

Map of the farm with clear demarcation of clean and dirt areas with uni directional approach should be displayed. There must be a Register for visitor's entry and exit. The schedule for entire management of the farm must be notified.

A visit to the CSBF, Hissar, indicated that the farm did make attempts for bio-security. Spraying was done at entry point so as to disinfect the vehicles. Training was also imparted to staff so as to maintain minimum interaction with animals which can be a source of infection. However, the officials at the farm revealed that there are still gaps in bio-security. First of all there was no proper boundary wall and absence of fencing led to infiltration of farm by stray animals. This increases the scope for spread of diseases and contamination on the farm. The farm also had several entry points which can be a threat to bio-security. There is also shortage of officers and other supervisory staff which prevents bio-security norms from being practiced. This can be a major source to cause infection on the farm.

Therefore in order to maintain strict bio-security on the farm, it is necessary to make all round efforts to maintain suitable infrastructure such as proper boundary wall, suitable fencing and also skilled personnel to implement bio security practices. This will ensure that the farm can produce disease free animals and also maintain the health of the existing fleet.

Chapter 4

Expenditure and Revenue of the Central Sheep Breeding Farm

The sheep breeding farm in Hisar is one of the largest such farms in Asia spread over around 994 hectares of land housing around 3966 sheep and 663 goat in the year 2013-14. It is not only important to know whether the activities on such a large farm are in tune with the objectives of the farm but also whether the activities are carried out efficiently in terms of expenditure incurred and the revenue generated and the economic viability of the farm. In this chapter we therefore analyse the available data on plan and non plan expenditure incurred on the farm, expenditure incurred on sheep and goats, revenue generated by the farm etc.

4.1 Expenditure incurred by the CSBF

Table 4.1 presents the budget grant and the actual expenditure of the CSBF Hissar. It can be seen that the budget grant as well as the expenditure are increasing since 2007. The actual expenditure of the CSBF has been around 9.5 crores in the last two years.

Table 4.1: The Budget Grant and the Actual Expenditure of CSBF Hisar (In Rs)

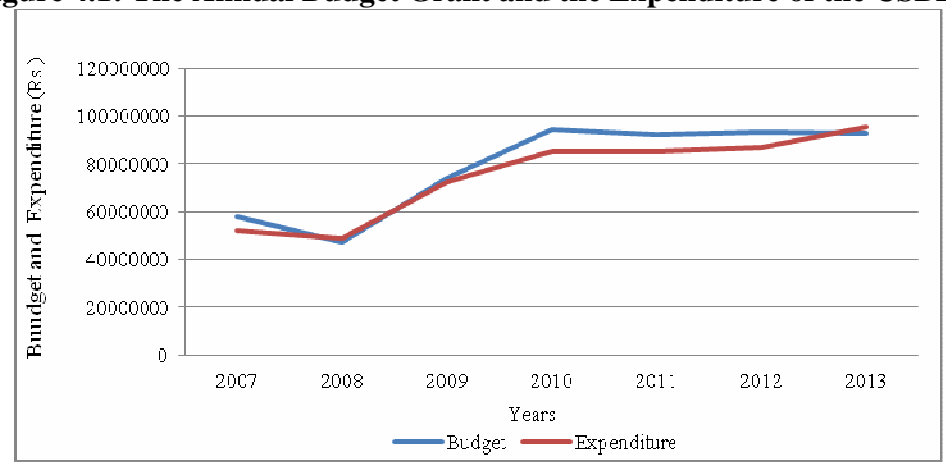
Year	Budget Grant	Expenditure	% of Expenditure to Budget Grant
2007	57940000	51986647	89.72
2008	47200000	49058239	103.94
2009	73800000	72398862	98.10
2010	94200000	84995139	90.23
2011	92000000	85384407	92.81
2012	93500000	86665297	92.69
2013	92500000	95695000	103.45
2014	95957000	95465759	99.49

Source: Office of Central Sheep Breeding Farm, Hissar

Over the concerned period, the budget grant has increased by 66 percent and the expenditure by 84 percent. It is also seen that the utilization of the budget grant is around 90 to 99 percent in various years except in the years 2008 and 2013 when it is seen to be

more than 100 percent. The data thus shows marginal scope for increasing the actual expenditure during the concerned period. Figure 1 depicts the above data. It can be seen that there has been a sharp increase in the budget grant as well as the actual expenditure after 2008.However, after 2010, both the indicators appear to be increasing at a very slow pace.

Figure 4.1: The Annual Budget Grant and the Expenditure of the CSBF Hisar.



Source: Based on data obtained from the Office of Central Sheep Breeding Farm, Hissar

Table 4.2 reveals the break up of actual expenditure into plan and non plan expenditure.As is usually expected and observed, the non plan expenditure which mainly consists of salaries and wages constitutes around 60 to 80 percent during 2007 to 2014.

Table 4.2: Share of Plan and Non Plan Expenditure, CSBF Hisar

(In percent)

Year	Plan Expenditure	Non Plan Expenditure
2007	37.92	62.08
2008	29.45	70.55
2009	30.33	69.67
2010	24.18	75.82
2011	20.84	79.16
2012	19.91	80.09
2013	22.68	77.32
2014	21.96	78.04

Source: Based on data obtained from the Office of Central Sheep Breeding Farm, Hissar

Table 4.3 reveals distribution of the expenditutre under various subheadings during 2007 to 2014.It can be seen that office expenses, rent and taxes, supplies and material and minor works are the major components under the plan expenditure.

Table 4.3: Share of Plan and Non Plan Expenditure, CSBF, Hisar (In percent).

	Sub-Heads	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
A	**Plan Expenditure**								
1	Office Expenses	11.41	11.76	13.65	12.15	16.85	31.88	26.96	27.48
2	Rent Rate & Taxes	15.06	19.31	12.73	13.54	15.57	17.39	13.82	14.46
3	Supplies & Material	30.86	34.52	25.05	24.58	30.77	23.18	18.43	11.27
4	Advertising & Publicity	0.00	0.00	0.00	0.00	0.00	0.00	0.46	0.00
5	Minor Works	33.16	11.18	13.46	14.59	12.40	11.06	27.19	33.74
6	Professional Services	2.64	0.47	0.07	0.33	0.28	1.14	0.23	0.03
7	Machinery & Equipment	3.86	3.38	2.28	2.42	4.46	4.62	3.69	3.83
8	Major Works	1.28	19.38	32.76	32.38	19.67	10.73	9.22	9.19
9	Information and Technology	1.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total (A)	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
B	**Non Plan Expenditure**								
1	Salaries	96.32	96.29	96.95	97.40	96.54	97.19	97.98	98.68
2	Wages	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00
3	Overtime Allowance	0.02	0.02	0.02	0.38	0.01	0.02	0.02	0.01
4	Medical Treatment	0.49	0.87	0.40	0.81	0.40	0.72	0.27	0.69
5	Domestic Travelling Exp.	0.68	0.63	0.75	0.00	1.37	0.43	0.27	0.37
6	Foreign Travelling Exp.	0.00	0.00	0.00	1.40	0.00	0.00	0.00	0.00
7	Office Expenses	2.48	2.19	1.88	0.00	1.69	1.64	1.46	0.25
	Total (B)	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Source: Based on the data obtained from the Office of Central Sheep Breeding Farm, Hissar

On the whole it is observed that the share of office expenses is increasing over the years indicating increasing administrative cost.At the same time, share of expenditure on supplies and material is declining. Share of expenditure on major works is seen to be higher only in a couple of years.Data relating to non plan expenditure shows that more than 97 percent of the expenditure is salaries. It can be noted that the share of expenditure on machinery and equipment's, information and technology and medical treatment is negligible. The expenditure under these items can be treated as investment in infrastructure, technology, and health which can give results over a long period of time.

The table does not include item of expenditure on research and development which is extremely essential for growth of the farm.

The major items of expenditure are presented in table 4.4 Taking together the plan and non plan expenditure, salaries and the office expenses constitute the major part of the total expenditure and almost 80 percent of the total expenditure has been spent on salaries and office expenses since 2010.The share of salary component is increasing while that of other major items is declining.

Table 4.4: Major Components of the Total Expenditure CSBF, Hisar

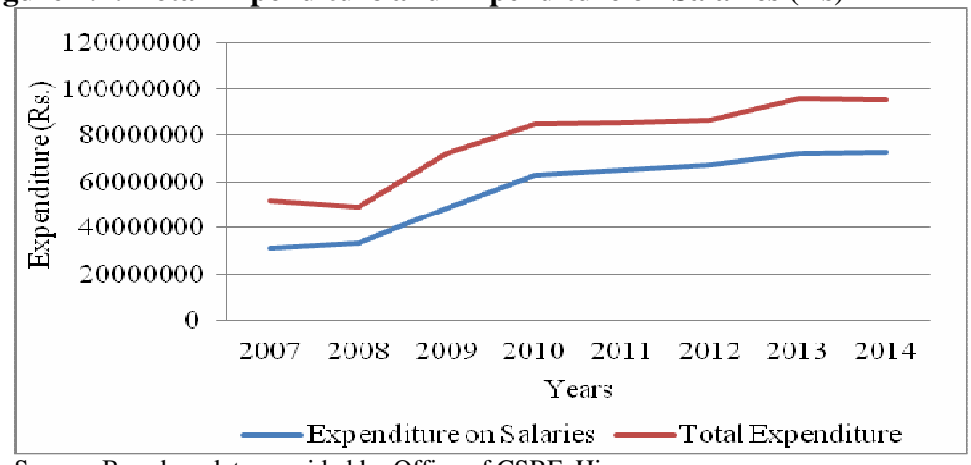
(In percent)

	Item	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
1	Office Expenses	4.33	3.46	4.14	2.94	3.51	6.35	6.11	5.97
2	Rent Rate & Taxes	5.71	5.69	3.86	3.27	3.25	3.46	3.13	3.14
3	Supplies & Material	11.70	10.17	7.60	5.95	6.41	4.62	4.18	2.45
4	Minor Works	12.58	3.29	4.08	3.53	2.59	2.20	6.17	7.33
5	Major Works	0.49	5.71	9.93	7.83	4.10	2.14	2.09	2.00
6	Salaries	59.79	67.93	67.55	73.84	76.42	77.84	75.76	76.20
	Total	94.60	96.25	97.16	97.36	96.27	96.60	97.45	97.10

Source: Office of Central Sheep Breeding Farm, Hissar

Figure 4.2 shows that the movement of expenditure on salaries is similar to that of the total expenditure 2007 to 2014.

Figure 4.2: Total Expenditure and Expenditure on Salaries (Rs)



Source: Based on data provided by Office of CSBF, Hisar

It is clear that though the expenditure of CSBF is increasing, it is mainly on account of the salary part. The expenditure / increasing expenditure does not reflect investment in new technology or infrastructure.

The following table shows data on expenditure incurred specifically on the animals during last five years. It is in the range of 1.18 crores to 1.48 crores. It is seen that around 13 to 16 percent of the expenditure amount is spent on the animals.

Table 4.5: Total Expenditure and Expenditure on Animals, CSBF, Hisar (In Rs)

Financial Year	Total Expenditure	Expenditure on animals	Share of expenditure on animals in total expenditure (%)
2009-10	84995139	11800600	13.88
2010-11	85384407	13230317	15.50
2011-12	86665297	14633558	16.89
2012-13	95695000	14880000	15.55
2013-14	95465759	13025129	13.64

Source: Based on data provided by Office of CSBF, Hisar.

Tables 4.6 and 4.7 shows the expenditure incurred on sheep and goats under various headings on the CSBF and item wise share of the same.

Table 4.6: Expenditure Incurred on Sheep and Goats during 2009-10-2013-14 on CSBF (In Rs)

	Item	2009-10	2010-11	2011-12	2012-13	2013-14
1	Electricity Charges	1048865	1501936	1296497	1551791	1877412
2	Volumetric charges	103611	136355	153610	231724	425419
3	Seed for fodder	310390	625965	479363	598680	330430
4	feed	1044312	1564400	1440200	801000	881974
5	fertilizer / Pesticides	187987	330700	225215	280785	225960
6	Lease / Rent	2702336	2702336	2702336	2702336	2702336
7	HSD / Pol	1865417	1846861	2142680	2744213	2047045
8	Mineral bricks	268800	255200	0	250000	0
9	Veterinary Medicines	458480	997418	1163606	593523	641927
10	Tyre and Tube	49000	99400	95160	96500	161020
11	Miscellaneous Expenditure	2902891	1763235	4153649	4851225	2937269
12	Machinery Equipment	858511	1406511	781242	178223	794337
	Total	11800600	13230317	14633558	14880000	13025129

Source: Based on data provided by Office of CSBF, Hisar.

Table 4.7: Share of Expenditure incurred under Various sub headings on Sheep and Goats in CSBF **(In percentage)**

		2009-10	2010-11	2011-12	2012-13	2013-14
1	Electricity Charges	8.89	11.35	8.86	10.43	14.41
2	Volumetric charges	0.88	1.03	1.05	1.56	3.27
3	Seed for fodder	2.63	4.73	3.28	4.02	2.54
4	feed	8.85	11.82	9.84	5.38	6.77
5	fertilizer / Pesticides	1.59	2.50	1.54	1.89	1.73
6	Lease / Rent	22.90	20.43	18.47	18.16	20.75
7	HSD / Pol	15.81	13.96	14.64	18.44	15.72
8	Mineral bricks	2.28	1.93	0.00	1.68	0.00
9	Veterinary Medicines	3.89	7.54	7.95	3.99	4.93
10	Tyre and Tube	0.42	0.75	0.65	0.65	1.24
11	Misc. Expenditure.	24.60	13.33	28.38	32.60	22.55
12	Machinery Equipment	7.28	10.63	5.34	1.20	6.10
	Total	100	100	100	100	100

Source: Based on data provided by Office of CSBF, Hisar.

4.2 Revenue Generated by CSBF

One of the important indicators for evaluation of the activities of the farm is the revenue generated in comparison with the expenditure incurred. This indicates profitability of the activities and whether the activities can be sustained. Table 4.8 presents figures of total revenue along with total expenditure for the concerned period.

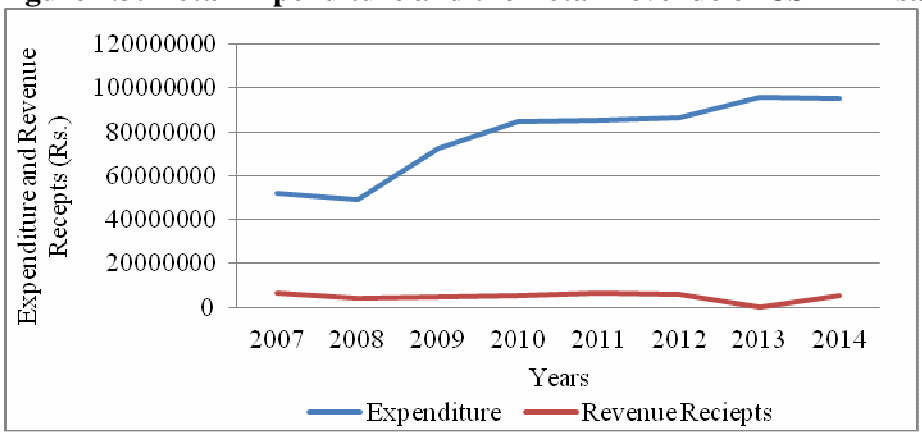
It can be seen that during this period, the revenue has been in the range of around 40 lakhs to 64 lakhs. In percentage terms, the revenue was around 12 percent of the expenditure in 2007.However, it has been less than 10 percent 2008 onwards. This is presented in figure 4.2 also which highlights the gap between the expenditure and the revenue generated which has increased over the period.

Table 4.8: Total Expenditure and the Total Revenue, Hissar (Rs)

Year	Total Expenditure	Total Revenue	Total Revenue as % of Total Expenditure
2006-07	51986647	6305509	12.129
2007-08	49058239	4017525	8.189
2008-09	72398862	4469845	6.17
2009-10	84995139	5075462	5.97
2010-11	85384407	6435266	7.54
2011-12	86665297	5712413	6.59
2012-13	95695000	NA	NA
2013-14	945465759	5369337	5.62

Source: Based on data provided by Office of CSBF, Hisar.

Figure 4.3: Total Expenditure and the Total Revenue of CSBF Hisar



Source: Office of Central Sheep Breeding Farm, Hissar

Classification of revenue receipts into various individual items shows that sale of sheep and rams is the major revenue item. The revenue from this source has an increasing trend till 2011.It has however started declining since then.

Table 4.9: Classification of Revenue Receipts of CSBF Hisar under various Headings

(Rs)

	Source of revenue	2006-07	20007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
1	Sale of Sheep/Rams	2583221	2696522	2834615	3040210	4156995	3362236	NA	3855270
2	Sale of Wool	798397	0	213487	249702	342801	303635	NA	255191
3	Sale of Farm Produce	790594	281683	1345123	1391765	522533	1279502	NA	326411
4	Misc. Receipt	2133297	1039320	76620	393785	1412937	76673.6	NA	881686
5	R.T.I	0	0	0	0	0	304	NA	30
6	Sale of Milk	0	0	0	0	0	0	NA	50749
	Total	6305509	4017525	4469845	5075462	6435266	5712413	NA	5369337

Source: Based on data provided by Office of CSBF, Hisar.

In table 4.10, share of receipts from various sources is presented. It is seen that sale of rams is the most important item under receipt. Its share was 40 percent in 2007 and has gone up to around 72 percent in 2014.Share of 'sale of farm produce' which has been significant in some years, has declined during this period. The CSBF owns more than 900 ha of land out of which 806 hectares the cultivable land is. The share of revenue from sale of farm produce was almost 30 percent in 2009 and 2010 and 22 percent in 2012.The These receipts as well as their share could have been higher in particular years owing to factors such as higher farm production, higher prices received for the farm produce during those years.

Table 4.10: Classification of Revenue Receipts of CSBF Hisar under various Headings

(In percentage)

	Sub headings	2006-07	20007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
1.	Sale of Sheep/Rams	40.97	67.12	63.42	59.90	64.60	58.86	NA	71.80
2.	Sale of Wool .	12.66	0.00	4.78	4.92	5.33	5.32	NA	4.75
3.	Sale of Farm Produce	12.54	7.01	30.09	27.42	8.12	22.40	NA	6.08
4.	Misc. Receipt	33.83	25.87	1.71	7.76	21.96	1.34	NA	16.42
5.	R.T.I	0.00	0.00	0.00	0.00	0.00	0.01	NA	0.00
6.	Sale of Milk	0.00	0.00	0.00	0.00	0	0	NA	0.95
	Total	100	100	100	100.00	100	100	-	100.00

Source: Office of Central Sheep Breeding Farm, Hissar

Table 4.11 shows the variable expenditure on animals per animal, revenue per animal as well as the gap between the two. It is essential to raise the revenue receipts so that the gap between the expenditure and revenue is minimized and the farm becomes economically viable. Thus, the farm has to devise strategies that would lead to increase in the revenue receipts that would fund the variable expenditure on all the animals including lactating mothers and kids.

Table 4.11: Expenditure and Revenue incurred per animal, per hectare (Rs)

Year	Total Variable Expenditure on Animals per Animal*	Total Revenue per animal*	Gap between Total Variable Expenditure on Animals per Animal and Revenue per animal
2006-07	NA	902.98	-
2007-08	NA	765.24	-
2008-09	NA	1049.26	-
2009-10	2600.397	1118.44	1481.957
2010-1	2691.824	1309.31	1382.514
2011-12	3578.762	1397.02	2181.742
2012-13	3569.201	NA	NA
2013-14	2820.513	1162.70	1657.813

Source: Based on data provided by Office of CSBF, Hisar.
Note: * opening balance of animals on the farm

The total area of CSBF is 994 hectares and the cultivable land is 806 hectares. Table 4.12 shows the plan expenditure (which mainly includes expenditure on rent and taxes, supplies and material, minor works, machinery and equipment etc.) per hectare and revenue receipts per hectare of total as well as cultivable land.

It is seen that the revenue receipts are considerably lower (5-6 times) than even the plan expenditure per unit of total as well as cultivable land. This underlines the importance of utilization of available land for upgradation of the farm and utilization of cultivable land for enhancing revenue generating agricultural and allied activities. As is data) shows nearly 500 hectares or 62 percent of the cultivable land is irrigated. Similarly, discussions with the CSBF officials revealed that the type of soil on the cultivable land is good. Thus, availability of water and type of soil do not appear to be major constraints in enlarging the scope of agricultural activities. Major sources of

revenue are sale of animals, sale of wool and sale of agricultural produce. Animals are purchased by the farmers/ breeders themselves, hence this leaves less scope for increasing revenue of CSBF through increase in sale price of animals. Therefore, it is observed that the revenue needs to be increased through sale of wool and agricultural products.

Table 4.12: Expenditure and Revenue incurred per animal, per hectare (Rs)

Year	Total Expenditure per hectare**	Plan expenditure per hectare of total land **	Plan expenditure per hectare of Cultivable land**	Revenue per hectare of total land **	Revenue per hectare of cultivable land***
2007	52274.15	19833.93	24460.21	6340.38	7823.212
2008	49329.55	14533.51	17923.46	4039.74	4984.522
2009	72799.26	22088.284	27240.39	4494.57	5545.713
2010	85465.20	20679.817	25503.397	5103.53	6297.099
2011	85856.62	17905.254	22081.665	6470.86	7984.201
2012	87144.59	17358.115	21406.906	5744.01	7087.361
2013	96224.23	21830.986	26923.077	NA	-
2014	95993.72	20869.685	25737.552	5399.03	6661.708

Source: Based on data provided by Office of CSBF, Hisar.
Note: ** total land- 994.5 ha. *** Cultivable land -806 ha.

On the whole, it is found that the total expenditure of CSBF is increasing. However, total revenue seems to have stagnated and is 5 percent to the total expenditure (2013-14). Nearly 80 percent of the funds are spent on salaries and office expenses and this leaves less scope for increasing expenditure on other important items. There is a need to utilize the funds more efficiently and increase the revenue receipts so for making the farm economically viable.

Chapter 5

Impact of Central Sheep Breeding Farm – Hisar

5.1 Backdrop :

It was observed in the previous chapters that the Central Sheep Breeding Farm, Hissar was initially established with the main objective of pure breeding of Corriedale sheep imported from Australia. However, since the survival of these rams was very low due to poor adaptability, the Corriedale was substituted by Rambouillet breed imported from USA. At present the main breed supplied by the farm to various states is Corriedale * Sonadi rams and Rambouillet * Nali rams. Further, since October 2003, a unit of Beetal goats has also been introduced in the farm. The state-wise distribution of rams (Table 2.6) indicates that since 2007-08 more than 70 percent rams were supplied to Karnataka. These are of Rambouillet breed. With respect to beetal goats also the distribution to Karnataka was highest in recent years and was 61 percent in 2013-14. Hence in order to understand the impact of animals supplied by CSBF, Hissar to the beneficiaries on further breeding, sample beneficiaries from the state of Karnataka were selected. It was observed in chapter 1 that Karnataka ranks second in the country in sheep population (2012) which indicates that sheep breeding is an important economic activity in the state. However, a disturbing feature, not only in Karnataka but in the entire country is that the sheep flock is almost entirely indigenous and as per Livestock census (2012) share of cross bred is only 5.21 percent. It is against this background that schemes such as CSBF, Hissar assume great importance. With respect to goat population, Karnataka does not rank high as compared to other states but since farmers had been supplied beetal bucks from Hissar farm in recent years, the impact of these bucks supplied was also observed. In addition to supplying rams and Beetal goat, CSBF, Hissar also imparts training to farmers in order to maintain good management practices and thereby improve the breed and reduce mortality. Hence farmers who underwent training were also addressed with a questionnaire to observe the relevance of training programmes.

Before going into insights from the field survey, in Table 5.1, the distribution of sheep population in Karnataka, district-wise is indicated and in Table 5.2 the district wise goat population is indicated. It is observed from table 5.1 that at the state level there is a decline in the sheep population during 2007 and 2012 by around 5 percent. Tumkur is the district with

highest share of sheep population and has retained its first rank in this regard in 2012 also though there is a slight decline in the sheep population in 2012 as compared to 2007.

Table 5.1 : District wise Number and Percentage Distribution of Total Sheep in Karnataka as per Livestock Census 2007 and 2012

SI. No.	District	2007				2012	
		Male	Female	Total	% share	Total	% share
1	Tumkur	276585	791124	1067709	11.16	1061270	11.65
2	Chitradurga	208926	722959	931885	9.74	939805	10.32
3	Belgaum	91637	808070	899707	9.41	788543	8.66
4	Bagalkot	87657	585505	673162	7.04	733404	8.05
5	Bellary	115600	540232	655832	6.86	754730	8.29
6	Gulbarga	107691	474606	582297	6.09	547012	6.01
7	Raichur	93601	467395	560996	5.86	100025	1.1
6	Koppal	85524	388707	474231	4.96	647379	7.11
9	Chikkaballapur	111655	308612	420267	4.39	431995	4.74
10	Mandya	110801	271760	382561	4	340355	3.74
11	Kolar	94403	272085	366488	3.83	444896	4.88
12	Bijapur	49987	286028	336015	3.51	309160	3.39
13	Davanagere	90338	243123	333461	3.49	343065	3.77
14	Gadag	42717	270663	313380	3.28	259166	2.85
15	Haveri	54434	211093	265527	2.78	252793	2.78
16	Mysore	83422	173597	257019	2.69	217973	2.39
17	Ramanagara	64425	157612	222037	2.32	152554	1.67
18	Hassan	74415	126 718	201133	2.1	158555	1.74
19	Bangalore Rural	42586	99109	141695	1.48	124612	1.37
20	Chamarajanagar	34991	98206	133197	1.39	128280	1.41
21	Chikmagalur	28895	67383	96278	1.01	91312	1
22	Bidar	21334	63308	84642	0.88	88402	0.97
23	Bangalore Urban	26140	53968	80108	0.84	77024	0.85
24	Dharwad	13713	43392	57105	0.6	73378	0.81
25	Shimoga	12573	12618	25191	0.26	36687	0.4
26	Uttar Kannada	749	1953	2702	0.03	4733	0.05
27	Kodagu	344	361	705	0.01	1361	0.01
28	Dakshina Kannada	113	190	307	0	264	0
29	Udupi	30	29	59	0	70	0
Total		2025286	7413688	9565696	100	9108803	100

Source : Livestock Census, Government of Karnataka

The goat population of the state has also declined over the census years by around 25 percent. District Belgam has highest share i.e.10 percent of the total goat population of the state in the year 2012.

Table 5.2: District Wise Number and Percentage Distribution of Total Goat in Karnataka as Per Livestock Census 2007 and 2012

SI. no.	District	2007				2012	
		Male	Female	Total	% share	Total	% share
1	Tumkur	147021	370742	517763	8.48	326889	7.21
2	Chitradurga	88038	280692	368730	6.04	231238	5.10
3	Belgaum	87028	522874	609902	9.99	490917	10.83
4	Bagalkot	67518	362587	430105	7.04	324612	7.16
5	Bellary	49948	222519	272467	4.46	186837	4.12
6	Gulbarga	162374	539203	701577	11.49	156509	3.45
7	Raichur	69612	312641	382253	6.26	371787	8.20
6	Koppal	36929	162532	199461	3.27	281700	6.21
9	Chikkaballapur	42067	124198	166265	2.72	136759	3.02
10	Mandya	64507	179816	244323	4.00	261369	5.77
11	Kolar	26511	64656	91167	1.49	86191	1.90
12	Bijapur	81926	370403	452329	7.41	367530	8.11
13	Davanagere	32785	121155	153940	2.52	103105	2.27
14	Gadag	29408	143135	172543	2.83	106304	2.34
15	Haveri	31627	118915	150542	2.47	127718	2.82
16	Mysore	62416	134604	197020	3.23	168130	3.71
17	Ramanagara	44214	123433	167647	2.75	120146	2.65
18	Hassan	41520	90645	132165	2.16	99083	2.19
19	Bangalore Rural	25498	69077	94575	1.55	80517	1.78
20	Chamarajanagar	29843	85018	114861	1.88	102846	2.27
21	Chikmagalur	20013	54666	74679	1.22	46057	1.02
22	Bidar	41062	147939	189001	3.10	145895	3.22
23	Bangalore Urban	12908	28189	41097	0.67	44604	0.98
24	Dharwad	13807	58566	72373	1.19	61689	1.36
25	Shimoga	18201	43479	61680	1.01	58009	1.28
26	Uttar Kannada	3438	8556	11994	0.20	8839	0.19
27	Kodagu	2872	4324	7196	0.12	7765	0.17
28	Dakshina Kannada	10136	15613	25749	0.42	24444	0.54
29	Udupi	842	1888	2730	0.04	6208	0.14
	Total	1344069	4762065	6106134	100	4533697	100.00

Source : Livestock Census, Government of Karnataka.

5.2 Profile of Sample Farmers:

Karnataka Sheep and Sheep Products Development Board was established in 1975 to oversee the welfare of sheep and sheep farmers in the state and was converted to Karnataka Sheep and Wool Development Corporation (KSWDC) with effect from 5-12-2001. The objectives of the Corporation include sheep rearing and management, breed improvement of

sheep, mechanical shearing of wool, collection, grading and processing of wool, manufacturing and marketing of wool and woolen products. The corporation implements several state as well as central government programmes and has 6 sheep breeding centres across various districts. Out of total rams distributed to Karnataka by CSBF, Hissar, about 454 rams were distributed through KSWDC to beneficiaries across the state in 2013-14. The sample selected in this study included beneficiaries from various villages located in Tumkur, Ramanagar and Chikkaballapur districts located in the Bangalore division for both Rambouillet rams as well as Beetal goats. Discussion with the officials of KSWDC revealed that there is comparatively greater demand by the farmers for Rambouillet breed in this particular region than those in the northern districts of Karnataka. It was also reported that these farmers are more progressive and innovative. As is clear from table 5.1, Tumkur district has highest sheep population which is mainly concentrated in Sira taluka. Hence beneficiaries from Sira taluka were selected. Also in Kanakpura taluka of Ramanagar district the head office of Bangalore Urban and Rural Districts Breeders Association is located. The number of sheep breeders who are members of this association is 1250. It was reported that the members are more progressive and have been regularly purchasing Rambouillet rams and Beetal goats from CSBF, Hissar. In the year 2013-14, nearly 75 sheep were supplied through KSWDC to this association. Hence around 20 beneficiary members of this association were randomly selected for assessing the impact of Rambouillet breed. Progressive sheep breeding beneficiaries were also selected from Chintamani taluka of district Chikkaballapur. These were breeders with relatively larger flock size and those who stall-feed the animals. In all, 30 beneficiaries from the above mentioned districts in Karnataka were randomly selected to study extent of breeding due to purchase of Rambouillet and Beetal goat. The animals normally above 6 months of age are transported from Hisar by trucks and each truck normally accommodates 80 animals. The transport cost is borne by **KSWDC** and only the cost of the animal is borne by the farmer.

5.2.1 Breeding of Sheep Supplied by CSBF, Hissar by beneficiaries:

The sample farmers/shepherds were mainly small and marginal. The average flock size of the sample beneficiaries for was 28 ewes. Farming and sheep breeding were the main economic activities and about 10 percent of the sample farmers also practiced sericulture, 15 percent had poultry and about 8 percent had dairy animals. With respect to agriculture, the cropping pattern was dominated by ragi, maize, coconut, mango, mulberry, vegetables and fodder crops. Thus it was observed that agriculture and sheep rearing were very

complementary to each other. Maize and fodder crops were cultivated to provide supplement feed for the animals and the droppings served as good quality manure for crop husbandry. A discussion with sample shepherds revealed the following features in life cycle of sheep:

Table 5.3: Life Cycle Rambouillet Rams and Bandur Ewes Cross

	Life of sheep - Stages	Feature	Distinct quality of Rambouillet
	Life of sheep	**7-8 years**	
1	Weight at the age of 1 year	35 kgs for local varieties	In case of Rambouillet, the weight can be up to 45-60 kgs and in certain cases, it can go upto 80-100 kgs
2	Maturity age of for crossing	1 year	
3	Productive life of male	2 years	After 2 years the ram is culled
4	Productive life of female	5-6 years	
5	Frequency of reproduction	3 times in 2 years	
6	Crossing ratio	1 ram: 25 ewes	
7	Lambing percentage	80 percent	In case of Rambouillet, with appropriate management practices, lambing can be even 100 percent
8	Mortality rate	For local breeds, it is 5 percent in case of adult animals and 10 percent for lambs	In case of Rambouillet, it is 2 percent for adult animals and 3 percent for lambs
9	Male female ratio for offspring	1:1	Shepard normally retains one or two males and remaining are sold. Females are used for further breeding
10	Sheep not fit for breeding and therefore slaughtered and sold for meat after rearing for 6 months.	One third of the total born	Only exotic and healthy sheep are retained for further breeding which is normally 80 percent of flock size

Source: Field level discussions

After observing the features of the life cycle of sheep (rams and ewes), an attempt was made to estimate the annual income from an animal and stock available for breeding from the data and information collected by the sample farmers. The same is indicated in Table 5.4.

Table 5.4: Estimate of Approximate Average Annual Income per Animal (Rambouillet Bandur Cross) in a Two Year Cycle

A	**Average size and composition of the flock**		
	Average flock size (Number)	1Ram and 28 ewes	Normally 1 ram is crossed with 25 ewes
	Lambs born (number)	58	80 percent lambing percentage and 3 percent mortality
	Slaughtered	20	One third
B	**Variable cost** (Rs)	Per animal	Observations
1	Purchase price of animals	4000	Ram purchased from Hisar, ewes were local
2	Transport cost after purchase	Nil	Borne by Govt
3	Labour cost while in transit	Nil	Borne by Govt
4	Feeding cost	Nil	Daytime open grazing
5	Cost of feeding the high protein concentrates	1500	
6	Hired labour cost of grazing	Nil	Family labour utilised
7	Additional cost of vaccination and medicines	400	Vaccination and deworming is provided twice a year free of cost
	Total	**5900**	
C	**Income from an Animal (Rs)**		
1.	Income from sale of animal to slaughter houses	7000	One third i.e. around 20 slaughtered and sold for on an average Rs 7000 each.
2.	Sale of manure produced. Manure produced by one animal (0.3 tonnes in 2 years)	900	Average price of manure is Rs3000 per tonne
	Income from sale of wool	**30**	1 kg of wool is produced per anmal in a cycle of two years. Average price of wool sold is around **30 per kg**
D.	**Total income (Rs)**	**7930**	
E.	**Net profit**	**2030**	Also, 38 animals remain (potential income). These animals serve a dual purpose. Firstly, they can again be used for breeding and thus increase the flock size. The same females can be used for breeding for another 5-6 years. The males can be used for breeding outside the flock. Secondly, they could fetch income as culled birds.

Source: Field level discussions

From the sample of 30 beneficiaries who had purchased Rambouillet rams from Hissar farms, the average flock size of ewes was 28. On an average about 58 sheep were produced in a cycle of two years and about one-third were slaughtered. By and large, the purchase price of an animal was Rs 4000. The cost of transporting the animal from Hissar as well as labor cost in transit to Karnataka was borne by the government. All shepherds revealed that there animals were grazed in the open with the help of family labour. Hence there was no variable cost attached to these components. However, open grazing did not

suffice for the animal in terms of nutrition and hence additional protein supplements were required which cost about Rs 1500 per animal over a two year cycle. Again vaccination and deworming for the animal is done free of cost by government veterinary hospital but the shepherd often has to bear additional costs in case of any other medical expenses which averages about Rs 400 per cycle.

The income from sheep rearing emerges from various sources. After birth of lambs, they are normally reared for about 9 months, after which the elite ones are separated from those that do not perform well and found not suitable for breeding. In the flock size indicated in Table 5.4, out of 58 born, about 20 were not found suitable for breeding and hence sold for being further slaughtered at an average price of Rs.7000. The manure produced by the sheep serves as excellent manure and by and large one animal produces 0.3 tonnes of manure in one cycle of two years. Since agriculture is also an important activity for the shepherds, often part of the manure is used in his farm while the balance is sold at a price of Rs.8000. Another source of income from sheep rearing is wool. However, discussion with all respondents revealed that production of wool was not their purpose. The wool produced was very coarse and also had virtually no market. Each sheep was sheared about two times a year and gave wool of about 1 kg in two years. The wool was normally sold for Rs 30 per kg. There were also instances when the wool produced was totally discarded due to thin market and low quality. Further, due to small flock size, the quantity of wool produced was also negligible. The net profit per animal was observed to be Rs 2030, over a two year cycle. However, the important point is that the shepherd still has 38 animals which serve as potential income. While the ewes can be used for breeding for 5-6 years, the males can be used for two years for breeding after which they are culled and hence fetch income.

5.2.2 Qualitative findings from field survey on cross breeding Rambouilet rams with local ewes:

As mentioned earlier, majority of the beneficiaries belonged to the Bangalore Urban and Rural Districts Sheep Breeders Association. A focused group discussion with these beneficiaries revealed that they were very progressive minded and made all attempts to increase their flock size. They were regular purchasers of Rambouillet breed from Hissar and the main reason for them to use this breed for cross breeding was the substantial potential of the lamb to gain weight. These farmers cross bred Rambouillet with local ewes such as Bellary or Bandur. After the birth of the cross bred lambs, the farmer retains the elite ones for cross breeding while others are to be sold after fattening. The farmer is aware that with

proper concentrate feed and appropriate management practices, the Rambouillet cross bred can easily attain a weight of 60 kgs and he may be in a position to even realize a price of Rs. 18,000. There are also cases when Rambouillet sheep had attained weight of more than 80 kgs. Success story of an influential breeder showed that the sheep attained weight of 100 kgs. The weight of the lamb in case of Rambouillet is about 25 to 30 percent higher than local breeds which are very advantageous to the farmer. Since the farmer is well aware of the potential weight gain of the cross bred animal, he takes extra care of the management practices which greatly reduces mortality. The lambing percentage can also go up to almost 100 percent. Increased weight gain of the cross bred animal as compared to indigenous breeds increases his profits, sometimes by 30 percent. In Karnataka there is huge demand for meat of Badnur variety as it has good taste. Therefore customers are willing to pay higher price for this meat. Therefore farmers are very interested in cross breeding this variety with Rambouillet so that they can also gain from increase in weight. Farmers are very confident that Rambouillet breed increases their profits and hence there were a few instances when farmers who had purchased Rambouillet ram from Hissar approached a bank successfully for loan to purchase 50 ewes. This clearly indicates that farmers are very keen on cross breeding Rambouillet with local breeds for the purpose of increasing flock strength as well as more production of meat. The mortality rate of Rambouillet was also observed to be barely 2 to 3 percent as against 5 to 10 percent for local breeds. The farmers have also made efforts to upgrade their entire flock to Rambouillet which makes it suitable to maintain almost 100 percent for breeding.

From the above, it is clear that farmers in Karnataka are very satisfied with the crossbred rams obtained from CSBF, Hissar. However, the data reveal that since 2007-08, more than 70 percent of rams are being supplied to Karnataka and the other states are not purchasing rams from CSBF, Hissar. To this extent the objectives of the scheme could not be fully fulfilled because rams are not being distributed to several states but mainly concentrated in Karnataka. It is possible that the other states have their own source of obtaining crossbred rams, or the rams from Hissar are unable to adapt to their climatic conditions. Therefore on the part of CSBF also, it is important to breed such crossbreds which will suit the requirements of other states and also help to increase the scale of their operations. This will help to increase the share of crossbred animals in the country which is largely dominated by indigenous breeds.

Success Story of H.K. Tammayappa

H.K. Tammayappa was an unemployed youth residing in Kanakpura taluka of Ramnagara district. He used to travel to Bangalore daily in search of work for daily wages so that he could sustain himself. With this status, he was forced to remain unmarried. Since he failed to fend for himself even by travelling to an urban centre on daily basis, he tried his hand on sheep rearing with a minimum flock of barely a few sheep. Also through Karnataka Sheep and Wool Development Corporation, a Rambouillet was supplied to him. He used this ram to cross breed with local Badnur variety and with good management practices, over the years he managed to increase the size of his flock. He began to upgrade his sheep to Rambouillet breed by repeated breeding with Rambouillet. Finally he more or less upgraded his sheep to Rambouillet breed and achieves more or less 100 percent lambing percentage. Gradually the size of his flock increased which also improved his economic status.

After achieving this level of success, he became President of Bangalore Urban and Rural Districts Breeders Association and is actively involved in motivating the members to be innovative and increase their flock size. He also supplies the members of his association Rambouillet rams for further breeding. Members of the association are also encouraged to insure their flock so that they get compensation in case there is mortality. Also his few acres of land and poultry farming provide him with complementary inputs for sheep rearing and supplementary income. He now is a confident person, highly motivated, has a house of his own and a small family.

5.2.3 Training Programmes by Central Sheep Breeding Farm, Hissar :

An important objective of setting the CSBF was to conduct extension and training programme so as to ensure that good quality rams are produced which can be further used for breeding and also mortality can be reduced. Accordingly two training programmes, viz Sheep Shearing Training Programme and Sheep Management and Production Training Programme are conducted and related to the entire management of sheep and goat. Accordingly, an attempt is also made to study the benefits of these training programmes on the beneficiaries.

A field survey was conducted in Hissar and Karnataka and about 30 beneficiaries were addressed with a questionnaire about the usefulness of these programmes. In Hissar, farmers benefitted from both the programmes. With respect to sheep shearing, shepherds were trained on mechanical wool shearing as it can be done in short duration, increases the

staple length of the wool and fetches a better return. Also participants were taught to grade the wool. In the state of Karnataka however, the farmers who purchased Rambouillet rams from Hissar, did not consider wool as an important source of income. Sheep rearing was done more for crossing local varieties with exotic breeds such as Rambouillet so that the quantity and quality of the product improves. The wool produced by shepherds in Karnataka was coarse variety with very limited demand and low price. In fact some farmers even discarded the wool. These shepherds however greatly benefitted from Sheep Management and Production Training Programmes and the same was observed in Hissar. This programme is in collaboration with the Wool Board of Jodhpur which actually sponsors the farmers for this programme.

The shepherds who had undergone training were taught superior methods of management practices which greatly increased their productivity. They purchased Rambouillet breed from CSBF, Hissar while ewes were purchased from local markets or from breeders in villages. The importance of maintaining the vaccination schedule was made known to them so that diseases can be prevented. Careful management of lambing and lactating ewes would have a marked influence on the percentage of lambs dropped and reared successfully. Nutrient management and importance of high protein in the feed also made the shepherds aware that this could lead to considerable weight gain. Most shepherds were mainly resorting to only open grazing. After undergoing the training programme they began to provide extra supplements to the animals mainly comprising of maize, cotton seed and other proteins. This helped the animals to gain weight which also increased their profits. Another important practice was to separate the advanced pregnant ewes from the main flock and take extra care in their feeding and management. Thus lesson on nutrition and health comprised a major component in the training programme because they play a major role in the overall productivity and well being of the flock. Also the need for prompt veterinary aid was explained to prevent mortality.

Information on appropriate care of lambs and the need to provide them with leguminous fodder as supplementary feed was also imparted to ensure their survival. The management of weaning and nutrient requirements of growing lamps was explained. Further, they were made to note that weaners should be grazed on suitable pastures to avoid injury and infection and must be protected from adverse weather conditions.

Culling of sheep, removing unhealthy flock and appropriate selection of rams and ewes for breeding was an important part of the programme. Normally about 10 to 20 percent

culling was practiced. The need to maintain records on livestock strength, breeding, lambing, wool and manure production, mortality, diseases if any, etc. must be kept.

After undergoing training all shepards mentioned that they had greatly benefitted from the training programme. There was improvement in their management practices, decline in mortality rate, and most important was the weight gain in the animal. Some farmers mentioned that the mortality rate which was 10 to 15 percent reduced to 5 percent for lambs and 2 percent for adults. They were also making attempts to maintain the germ plasm of Rambouillet. Farmers who attended the training programme said that they would strongly recommend it to other farmers. The additional benefit was that the farmers who underwent training passed on the knowledge and management practices to other farmers in the neighborhood, who still did not get the opportunity to attend the training programme. In fact the Gram Panchayat members of a village attended the programme and spread the knowledge to all practicing sheep breeding in the village. The farmers felt motivated to increase their flock size after training and some even applied to banks for financial assistance to purchase more sheep. This indicates the level of confidence build up in the shepards after undergoing training. Overall training in management of flock enabled them to increase the weight of the animal, reduce mortality substantially, improve the quality of the breed and increase lambing percentage.

5.2.4. Breeding of Beetal Goats Supplied by CSBF, Hissar :

It was noted earlier that in CSBF, Hissar a unit of Beetal goats was introduced in the farm since 2003 and from 2004-05 beetal bucks have been distributed to various states. Beetal bucks have been mainly sold to Haryana, Jammu & Kashmir and Karnataka. In 2012-13, about 35 percent of beetal goats that were supplied by CSBF, Hissar were sold to Karnataka (i.e. 43 beetal goats), while in 2013-14 it was 60 percent (i.e.50 beetal goats). Hence focus group discussion with shepards rearing goats in Karnataka was undertaken, so as to find out the benefits and constraints of beetal goat.

The shepards in Karnataka had preference for beetal goats because they serve a dual purpose. They have a good milk producing capacity of about 2 litres per day and also good mutton breed as compared to the local breeds of Karnataka. Presently there are no dairy goat breeds in Karnataka although there is need to increase its production.

The notable feature of goat rearing is that local goats have the capacity to often give twins or even triplets. Shepards who had purchased beetal bucks, revealed that this breed had

the capacity to gain weight and their aim was cross it with local variety and thus perpetuate the breed. Discussions with beneficiaries revealed that 30 percent of local goats give twins while 15 to 20 percent give triplets. There have even been cases when local goats give quadruplets. Thus when these local breeds cross with beetal goats, there is great scope to increase the flock size. As in case of sheep, the elite ones are kept for further breeding, while the rest are reared till they gain sufficient weight and then sold for meat. Although sample farmers in Karnataka, have only started purchasing beetal bucks in the recent past, they revealed that they were very satisfied and were confident that this breed has great potential. This is because presently the local breeds of goat in Karnataka do not have milk yielding capacity although there is demand for goat milk. It is believed that goat milk has medicinal properties and also with increase in per capita incomes, the demand for milk for daily consumption is increasing. Hence farmers are motivated to upgrade their local goat breeds for dual purpose. Betal goats are also able to adapt themselves to the local environment of Karnataka and hence if farmers use them for crossing with local breeds there will be increase in milk production, improved quality of meat and increase in flock size. This will increase their net earnings and hence improve their economic status.

As in case of sheep, most shepards resorted to open grazing for goats with the help of family labor. Hence the costs were minimal as other veterinary services were provided by government free of cost. However, since farmers realized the potential of beetal buck, they stated that they had started giving them concentrates also as it greatly increased the weight of the animal and thereby increased their net returns.

Overall, after discussions, it appeared that farmers are quite optimistic about rearing beetal bucks and also cross breeding with local varieties.

5.3 Production Potential of the Rams Supplied by CSBF Hisar

The above analysis clearly reveals a clear preference of the sample farmers in Karnataka for the crossbred rams supplied by CSBF, Hissar. The farmers are aware of the importance of using crossbred animals and preservation of germplasm of a breed like Rambouillet. Hence, the beneficiary farmers are preserving the elite and strong animals specifically for breeding. The positive impact of the rams supplied by CSBF Hisar is clearly observed. It is generally observed that one ram would be crossed with 25 ewes. This happens three times in a cycle of two years. Considering lambing percentage to be 80 percent and mortality of lambs to be 3 percent, a minimum of 58 lambs would be born in 2 years and

therefore 29 in one year from one ram (Table 5.3 and 5.4). These percentages can be applied to the total sheep sold by the CSBF Hisar in various states. This would give us a rough estimate of the extent to which sheep might have been multiplied over the years.

Table 5.5 shows that from a total of 27818 rams sold by CSBF, more than 8 lakh lambs (col.2) could have been born during 1981-82 to 2013-14. Assuming mortality rate to be 3 percent in case of Rambouillet and male female ratio to be 50 percent, the number of total rams born out of initially sold rams is found out. Col.5 shows that around 3 lakh rams appear to have born over a period of time. Thus, each ram sold by CSBF Hisar has multiplied by 14 times (column 8). Further, the first generation male offsprings fit for breeding appear to have multiplied by 9 times (col 9). This column shows that the original animals sold can produce around 9 times more offsprings ready for breeding and repeat the same cycle to produce more rams.

As is revealed from the field survey, the desired level of multiplication of rams would be attained when proper training is imparted to the breeders. Training helps in reducing the mortality and improve lambing percentage and improve overall health of the animals. The more the number of elite and strong rams, the more is the number of animals retained for breeding.

Overall, it appears, that CSBF, Hissar is providing parent stock of Rambouillet breed of rams which are being multiplied and thus the stock is increased and efforts to preserve the germ plasm is also made. Farmers are satisfied with this breed in view of its weight gain capacity and subsequent increase in net returns.

Table 5.5: Sheep Strength (Number) at CSBF, Hisar (1981-82 to 30-06-2014)

	Rams sold by CSBF Hisar	Lambs likely to be born from rams sold	Lambs alive (3 % mortality)	Total lambs born and alive	Rams born (50 % male – female ratio)	Culled birds, not fit for breeding (33 % of males born and alive	Rams fit for breeding	Rams born/ rams sold by CSBF	Rams fit for breeding / rams sold by CSBF
	1	2	3	**4**	5	6	**7**	8	9
1981-82	644	18676	560	18116	9058	2989	6069	14	9
1982-83	254	7366	221	7145	3573	1179	2394	14	9
1983-84	742	21518	646	20872	10436	3444	6992	14	9
1984-85	1056	30624	919	29705	14853	4901	9951	14	9
1985-86	781	22649	679	21970	10985	3625	7360	14	9
1986-87	880	25520	766	24754	12377	4084	8293	14	9
1987-88	120	3480	104	3376	1688	557	1131	14	9
1988-89	230	6670	200	6470	3235	1068	2167	14	9
1989-90	2521	73109	2193	70916	35458	11701	23757	14	9
1990-91	808	23432	703	22729	11365	3750	7614	14	9
1911-92	614	17806	534	17272	8636	2850	5786	14	9
1992-93	404	11716	351	11365	5682	1875	3807	14	9
1993-94	799	23171	695	22476	11238	3709	7529	14	9
1994-95	988	28652	860	27792	13896	4586	9310	14	9
1995-96	1228	35612	1068	34544	17272	5700	11572	14	9
1996-97	1069	31001	930	30071	15035	4962	10074	14	9
1997-98	924	26796	804	25992	12996	4289	8707	14	9
1998-99	794	23026	691	22335	11168	3685	7482	14	9
1999-00	581	16849	505	16344	8172	2697	5475	14	9
2000-01	419	12151	365	11786	5893	1945	3948	14	9
2001-02	944	27376	821	26555	13277	4382	8896	14	9
2002-03	1025	29725	892	28833	14417	4757	9659	14	9
2003-04	560	16240	487	15753	7876	2599	5277	14	9
2004-05	1420	41180	1235	39945	19972	6591	13381	14	9
2005-06	884	25636	769	24867	12433	4103	8330	14	9
2006-07	733	21257	638	20619	10310	3402	6907	14	9
2007-08	694	20126	604	19522	9761	3221	6540	14	9
2008-09	863	25027	751	24276	12138	4006	8133	14	9
2009-10	976	28304	849	27455	13727	4530	9197	14	9
2010-11	1541	44689	1341	43348	21674	7152	14522	14	9
2011-12	950	27550	827	26724	13362	4409	8952	14	9
2012-13	725	21025	631	20394	10197	3365	6832	14	9
2013-14	646	18734	562	18172	9086	2998	6088	14	9
Total	27817	806693	24201	782492	391246	129111	262135	14	9

Source : calculated from information gathered during field visit.

Appendix 5.1

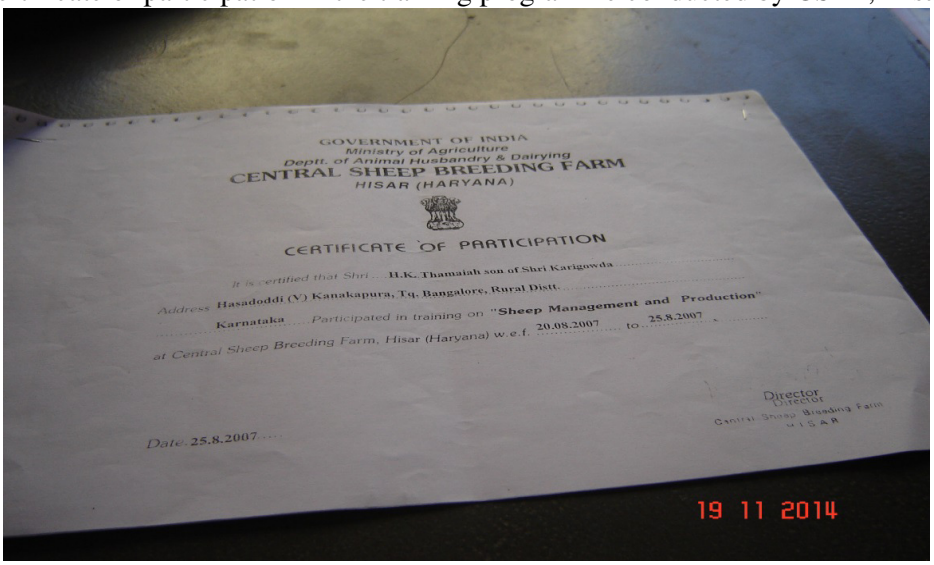
Propagation of Rambouillet Ram from Hisar, district Tumkur, Karnataka

Sample farm of Rambouillet crossbreed sheep, district Chikkaballapur

Meeting with the Beneficiaries who are members of the Bangalore Urban and Rural Districts Breeders Association, Kanakpura taluka, district Ramanagara.

Meeting with the officials and the beneficiaries, Kanakpura taluka, district Ramanagara.

Certificate of participation in the training programme conducted by CSBF, Hisar,


GOVERNMENT OF INDIA
Ministry of Agriculture
Deptt. of Animal Husbandry & Dairying
CENTRAL SHEEP BREEDING FARM
HISAR (HARYANA)

CERTIFICATE OF PARTICIPATION

It is certified that Shri H.K. Thamaiah son of Shri Karigowda
Address Hasadoddi (V) Kanakapura, Tq. Bangalore, Rural Distt.
Karnataka Participated in training on "Sheep Management and Production"
at Central Sheep Breeding Farm, Hisar (Haryana) w.e.f. 20.08.2007 to 25.8.2007

Date 25.8.2007

Director
Central Sheep Breeding Farm
HISAR

19 11 2014

Potential weight (100kg) achieved of crossbred Rambouillet from CSBF, Hisar, Kanakpura taluka, district Ramanagara

Comparison of the above with the local breed, Kanakpura taluka, district Ramanagara

The successful farmer as narrated in the text, Kanakpura taluka, district Ramanagara

The Beetal Goat from CSBF, Hisar, Kanakpura taluka, district Ramanagara

Propagation of Beetal goat from Hisar, Kanakpura taluka, district Ramanagara

Chapter 6

Summary and Policy Implications

6.1 Backdrop

Sheep development activity in India was undertaken since early 19th century by the East India Company, which imported exotic breeds for cross breeding with indigenous breeds. Subsequently, with the establishment of the Imperial (now renamed as Indian) Council of Agricultural Research in 1929, research and development programmes were taken up in major sheep rearing states. These activities mainly comprised of selective breeding within the indigenous breeds and cross breeding them with exotic fine wool breeds. After the country attained independence and embarked on its planning process, sheep development was given impetus. During the Third Plan period (1961-62 to 1965-66) a large number of sheep and wool extension centres were established, and a wool grading and marketing programme was initiated in Rajasthan. In 1962, realizing the importance of sheep in an agrarian economy, the Central Sheep & Wool Research Institute was established in Rajasthan with regional stations under an UNDP/Government of India project. The main purpose of this project was to undertake fundamental and applied research in sheep production and wool utilization and also to provide post graduate training in sheep and wool sciences. Another major initiative in 1968-70 was the establishment of Central Sheep Breeding Farm, Hissar in collaboration with the Government of Australia to upgrade the sheep flocks and improve the quality of production of wool. The farm was involved in pure breeding of Corriedale sheep and Corriedale stud rams were distributed from this farm to a number of states for cross breeding to improve wool and mutton production.

6.2 Objectives of Central Sheep Breeding Farm, (CSBF) Hissar :

The original technical programme of this project until the Sixth Plan period (ending 1984-85) was pure breeding of Corriedale sheep imported from Australia. The main objective of importing sheep from Australia was:

1. To produce large number of cross bred rams for distribution to the sheep raising areas of India;

2. To set up extension and training programme to ensure the best use of rams produced;

3. To ensure suitable management and requisite facilities for breeding and rearing under Indian conditions and using purely Indian resources.

To fulfill the above objectives, about 500 Corriedale sheep, 50 Merino rams, 310 Dorset Sheep and 299 Ewes were imported from Australia. However, these imported animals were unable to adapt to the environmental conditions in the farm and therefore their survival rate was poor. Accordingly, there was alteration in the initial programme and shift in National Policy for sheep breeding. The imports of sheep from Australia was stopped and substituted by imports from USA. Hence, instead of importing Corriedale from Australia, the country began to import fine wool Rambouillet breed from USA. Further, a unit of Beetal goats was introduced in the farm in October 2003. Hence besides concentrating on sheep development, the Hissar farm also began maintaining a flock of goats.

6.3 Status of Sheep and Goat and Livestock Products :

The Livestock Census across years indicated that from 1951 to 1977 there was only a negligible increase in sheep production. Infact according to the 1972 and 1987 census there was decline in sheep population compare to the previous census. From 2003 census to 2007 census, the sheep population increased by 16.4 percent but again declined by 9.2 percent in 2012. With respect to goats also, the increase across different census was often negligible. The greatest increase in goat population was from 1977 census to 1982 census when the goat population increased by 19.6 million or 26 percent. Between 2007 and 2012 census, the goat population declined by 3.84 percent.

The state-wise distribution of sheep and goat indicate that the highest sheep population is concentrated in the state of Andhra Pradesh (40.57 percent), followed by Karnataka (14.73 percent), Rajasthan (13.95 percent) and Tamil Nadu (7.36 percent). These four states together constitute about three-fourths of the country's sheep population. With respect to goats, Rajasthan has the highest share (15.30 percent) followed by West Bengal (10.72 percent) and Uttar Pradesh (10.53 percent). These three states constitute about little more than one-third of the goat population in the country.

It was observed that out of total sheep population in India, 94.19 are indigenous (2012). Further the share of indigenous sheep increased from 2003 to 2007 census by 4 percent while share of crossbred sheep declined from 9.32 percent to 5.21 percent.

The wool production showed a relatively larger increase in production in the decade of 1980s and 1990s. However, the production declined during the period 2000-01 to 2011-12.

The state-wise data on wool production revealed that the production of wool is highest in Rajasthan (28.56 percent), followed by Jammu & Kashmir (17.17percent), Karnataka (16.70 percent) and Andhra Pradesh (11.24). These states together contribute to nearly three-fourths of the wool production of the country.

Meat production in India which was 1.9 million tonnes in 1998-99 increased to 5.5 million tonnes in 2011-12. The increase in production from 1998-99 to 2006-07 was rather slow but showed slight icrease from 2007-08. It can be observed that with respect to sheep meat, Uttar Pradesh has highest share, followed by Andhra Pradesh and West Bengal. In case of sheep meat, Uttar Pradesh has the highest share (17.3 percent), followed by Andhra Pradesh (15.34 percent). With respect to goat meat, West Bengal had highest share which is about one-fourth of the country's production.

Another product emerging from goat is milk production. However, the share of milk from goats in total milk production is negligible and constitutes barely 3.7 percent of total milk production (2011-12).

6.4 Livestock Sector (Sheep and Goat) and Government Initiatives:

Animal husbandry is an important component of Indian agriculture and as much as 27.28 percent of gross domestic product from agriculture and allied activities comes from livestock sector. Livestock sector grew at an annual rate of 5.3 percent during 1980s, 3.9 percent during 1990s and 3.6 percent during 2000s (Working Group of Animal Husbandry, 2012-17). The growth pattern of livestock population is indicated in Table 6.4.1. It was observed that growth rate in sheep and goat population has never been too high and infact been negative in some periods or negligible.

Table 6.1 : Annual Growth Rate (percent per annum) of Sheep and Goat in India

Year	1951-56	1956-57	1961-66	1966-72	1972-77	1977-82	1982-87	1987-92	1992-97	1997-2003	2003-07
Sheep	0.10	0.45	1.07	-1.16	0.50	3.53	-1.29	2.13	2.61	1.12	3.87
Goat	3.26	1.91	1.19	0.88	2.29	4.73	2.96	0.90	1.26	0.22	3.10

Source: Department of Animal Husbandry, Dairying and Fisheries, Ministry of Agriculture,Government of India

Wool production also did not gather much momentum in the first few decades of the plan period and in the recent past it declined from 48.4 million kgs in 2000-01 to 44.4 kgs in 2011-12. Goat meat has also remained less than one million kgs. till date.

It was mentioned earlier that various government programmes were initiated to promote sheep development activities and one major programme was the setting up of Central Sheep breeding farm at Hissar, Haryana with the primary aim to produce exotic fine wool rams to be distributed to the seven large State Sheep Breeding Farms which in turn were mandated to produce cross bred rams to be distributed to the farmers for improving wool production and quality of their sheep. The farm was established in 1968-70,i.e during the Fourth Plan Period and it is more than four decades since this farm has been in operation. An evaluation of this Central Sector-Central Sheep Breeding Farm (CSBF), Hissar, Haryana was therefore felt necessary by Department of Animal Husbandry, Dairying and Fisheries, Government of India, order to understand the progress as well as limitations in its functioning. Accordingly this study was undertaken.

6.5 Objectives of the Study :

The Terms of Reference for evaluation of CSBF, Hissar as indicated by the Department of Animal Husbandry, Dairying and Fisheries, Government of India, are:

1. To note the physical status of land, buildings, machinery, terms of lease and critical gaps in infrastructure;

2. To note the status of personnel, both skilled and unskilled, technical and non-technical staff and assessment of their efficiency on the farm;

3. The animal strength on the farm, the budget of the scheme and economic viability of the production of rams and bucks is also to be observed;

4. To look into the biosecurity measures on the farm;

5. To analyse the impact of the training programmes provided to beneficiaries and the extent to which it has increased breeding of rams and bucks;

6. To suggest policy implications of the study

6.6 Methodology:

The study is based on primary and secondary data. Data regarding functioning of the scheme has been obtained from CSBF, Hissar and secondary data on status of sheep and goat population as well as their products was obtained from Department of Animal Husbandry, Dairying and Fisheries, Ministry of Agriculture, Government of India.

Primary data on impact of CSBF, Hissar on breeding was collected from beneficiaries in Karnataka. The impact of training programmes conducted by CSBF was collected from beneficiaries in Karnataka and Haryana. Karnataka Sheep and Sheep Products Development Board was established in 1975 to oversee the welfare of sheep and sheep farmers in the state and was converted to Karnataka Sheep and Wool Development Corporation (KSWDC) with effect from 5-12-2001. The corporation implements several state as well as central government programmes and has 6 sheep breeding centres across various districts. Out of total rams distributed to Karnataka by CSBF, Hissar, about 454 rams were distributed through KSWDC to beneficiaries across the state in 2013-14. The sample selected in this study included beneficiaries from various villages located in Tumkur, Ramanagar and Chikkaballapur districts located in the Bangalore division of the state for both Rambouillet rams as well as Beetal goats. Discussion with the officials of KSWDC revealed that there is comparatively greater demand by the farmers for Rambouillet breed in this particular region than those in the northern districts of Karnataka. It was also reported that these farmers are more progressive and innovative. Tumkur district has highest sheep population which is mainly concentrated in Sira taluka. Hence beneficiaries from Sira taluka were selected. Also in Kanakpura taluka of Ramanagar district the head office of Bangalore Urban and Rural Districts Breeders Association is located. The number of sheep breeders who are members of this association is 1250. It was reported that the members are more progressive and have been regularly purchasing Rambouillet rams and Beetal goats from CSBF, Hissar. In the year 2013-14, nearly 75 sheep were supplied through KSWDC to this association. Hence around 20 beneficiary members of this association were randomly selected for assessing the impact of Rambouillet breed. Progressive sheep breeding beneficiaries were also selected from Chintamani taluka of district Chikkaballapur. These were breeders with relatively larger flock size and those who stall-feed the animals. In all, 30 beneficiaries from the above mentioned districts in Karnataka were randomly selected to study extent of breeding due to purchase of Rambouillet and Beetal goat. The reference year for the study was 2013-14. A well designed

questionnaire was framed and addressed to sample beneficiaries in order to understand the impact of the scheme in fulfilling its main objective of increasing supply of rams/bucks.

An important objective of setting the CSBF was to conduct extension and training programme so as to ensure that good quality rams are produced which can be further used for breeding and also mortality can be reduced. Accordingly two training programmes, viz Sheep Shearing Training Programme and Sheep Management and Production Training Programme are conducted and related to the entire management of sheep and goat. Accordingly, an attempt is also made to study the benefits of these training programmes on the beneficiaries. Therefore, a field survey was conducted in Hissar and Karnataka and about 30 beneficiaries were addressed with a questionnaire about the usefulness of these programmes.

6.7 The CSBF Hisar

CSBF was established on 6477 acres of land, leased by the Government of Haryana for a period of 20 years (i.e. from 1st August 1968 to 31st July 1988) at the lease rent of Rs 1.00 per acre per annum. In May 1977, about 4028 acres of land (pasture/grazing) land was taken back by the Government of Haryana. At present, the total land available with the farm is 2456 acres. Discussions with officials at CSBF, Hissar reveal that the lease will expire in July 2015. Hence after 2015, if the government of Haryana does not extend the lease, the future of the scheme is uncertain. The utilization of the land available to the CSBF can be observed from Table 6.7.1.

Table 6.2: Status of Land Available with Central Sheep Breeding Farm, Hissar

Sr. No.	Details of land	Area (hectares)
1.	Total area of the farm	994.5
2	Total cultivable area of the farm	806.0
3	Irrigated area of the farm	500.0 (62 percent)
4	Unirrigated/Rainfed area of the farm (Under cenchrus natural pasture)	306.0 (38 percent)
5	Uncultivable area (sand dunes, low lying, jungle area)	27.0
6	Area under roads and channels	84.5
7	Area under buildings	77.0

Source: Office of Central Sheep breeding Farm, Hissar

The farm has essential physical infrastructure and machinery and vehicles to take care of administration of the animals and the human resources. The staff position in CSBF is presently 219 although the sanctioned posts are 246. It is observed from the available data that some key positions in the CSBF are vacant which may inhibit expansion and smooth functioning of the farm.

Bio-Security is an integrated approach encompassing policy and regulatory frameworks to analyse and manage risks in the areas of animal health and food safety, contain diseases, environmental risks and also to avoid economic losses. An appropriate bio-security plan helps to prevent any disaster which will have a major adverse effect on the farm. A visit to the CSBF, Hissar, indicated that the farm did make attempts for bio-security. Spraying was done at entry point so as to disinfect the vehicles. Training was also imparted to staff so as to maintain minimum interaction with animals which can be a source of infection. However, the officials at the farm revealed that there are still gaps in bio-security. First of all there was no proper boundary wall and absence of fencing led to infiltration of farm by stray animals. This increases the scope for spread of diseases and contamination on the farm. The farm also had several entry points which can be a threat to bio-security. There is also shortage of officers and other supervisory staff which prevents bio-security norms from being practiced. This can be a major source to cause infection on the farm.

6.8 Sheep Strength and Wool Production at CSBF, Hissar :

About 500 Corriedale sheep, 50 Merino rams, 11 Dorset rams and 299 Ewes were imported from Australia since 1979-80. The sheep strength in the farm from 1981-82 to 2014-15 is indicated in Table 6.7.1

It can be observed that the sheep strength which had an opening balance of 6953 sheep in 1981-82, reached a peak of 9481 in 1988-89 showed fluctuations throughout the period and was 4839 in 2014-15 ongoing period. The opening balance was lowest in 2011-12 and was of the order of 3443. The birth has fluctuated from a high of 3772 in 2003-04 to a low of 1303 in 2007-08. The mortality percentage has also shown wide fluctuations ranging from 36 percent in 1992-93 to 8.13 in 2009-10.

Table 6.3 : Sheep Strength (Number) at CSBF, Hissar (1981-82 TO 30-06-2014)

Year	Opening Balance	Addition by Import	Birth	Culling	Sold	% of sold to opening balance	Transfer to States	Death	Mortality %
1981-82	6953		3233	52	644	9.26		1644	16.14
1982-83	7846		2799	541	254	3.24		2050	19.26
1983-84	7800		3213	115	742	9.51		2995	27.20
1984-85	7161	615	3611	386	1056	14.75		1999	18.56
1985-86	7946	1016	2598	681	781	9.83		1805	17.12
1986-87	8293		2542	677	880	10.61		2335	21.55
1987-88	6953	1375	3274	73	120	1.73		1928	18.85
1988-89	9481	1227	3119	576	230	2.43		3859	30.63
1989-90	9162	1695	3065	455	2521	27.52		3173	25.95
1990-91	7773	1170	3123	174	808	10.39	32	3162	29.02
1911-92	7890		2736	343	614	7.78		2461	23.16
1992-93	7208	1008	2221	443	404	5.60		3414	36.21
1993-94	6176	1089	2979	295	799	12.94	90	1348	14.72
1994-95	7712		3266	403	988	12.81		2001	18.23
1995-96	7586	2058	2957	371	1228	16.19	70	2216	21.02
1996-97	8716		3097	508	1069	12.26		2210	18.71
1997-98	8026		3170	991	924	11.51		1837	16.41
1998-99	7444		2409	401	794	10.67		2659	26.99
1999-00	5999		1891	567	581	9.68		1690	21.42
2000-01	5052		2788	362	419	8.29		840	10.71
2001-02	6219		2813	287	944	15.18		829	9.18
2002-03	6972		2776	270	1025	14.70		1576	16.17
2003-04	6877		3772	268	560	8.14		1192	11.19
2004-05	8629		2677	524	1420	16.46		1653	14.62
2005-06	7709		2142	617	884	11.47		1608	16.32
2006-07	6742		1483	1448	733	10.87		1001	12.17
2007-08	5043		1303	829	694	13.76		976	15.38
2008-09	3847		1832	276	863	22.43		486	8.56
2009-10	4054		1935	122	976	24.07		487	8.13
2010-11	4404		1355	179	1541	34.99		596	10.35
2011-12	3443		1734	205	950	27.59		436	8.42
2012-13	3586		1848	237	725	20.22		517	9.51
2013-14	3955		2387	276	646	16.33		581	9.16
2014-15	4839		134	NA	NA	NA		193	3.88

Source: Office of Central Sheep Breeding Farm, Hissar

Table 6. 4 : Wool Production on CSBF, Hissar

S.N	Year	Clipping (Kg.)		Total Weight in (Kg.)
		March/ April	**Sept./ October**	
1	1997	8493.0	10231.0	18724.0
2	1998	6029.5	6650.0	12679.5
3	1999	4939.0	5938.0	10877.0
4	2000	4388.5	7516.0	11904.5
5	2001	4904.5	8103.0	13007.5
6	2002	4990.5	7865.5	12856.0
7	2003	6977.0	5898.5	12875.5
8	2004	6111.5	10300.0	16411.5
9	2005	3596.5	5982.5	9579.0
10	2006	4216.5	4811.0	9027.5
11	2007	3550.0	4391.5	7941.5
12	2008	2710.0	3918.5	6628.5
13	2009	2703.0	4361.5	7064.5
14	2010	2539.0	2879.0	5418.0
15	2011	2315.0	3094.5	5409.5
16	2012	2524.0	3406.0	5930.0
17	2013	2359.0	3292.5	5651.5

Source: Office of Central Sheep Breeding Farm, Hissar

6.9: Training Programmes conducted by CSBF, Hissar :

The farm imparts shearing training courses for the leading veterinarian, para-veterinary staff and other workers engaged in the field of shearing from various government departments twice a year. These programmes are conducted in the month of Feruary/March and also in October/November for a period of two weeks and considered to be a certificate course. In this programme, training is imparted to farmers for uniform fleece/wool cut so that the quality of wool is improved. Field camps are also organized in various states.

It was observed that maximum Sheep Shearing Programmes since last five years was conducted in the state of Haryana. Perhaps close proximity to the farm facilitates participants. In 2006-07, out of 192 training programmes conducted, as many as 106 or 55 percent were conducted in Jammu&Kashmir. However, in the following years, there were no programmes in Jammu &Kashmir. The number of programmes were maximum in 2011-12.

The Sheep Management and Production Training Programme is a one week certificate course in collaboration with the Wool Board of Jodhpur and imparts training related to the entire management of sheep and goat. This programme is aimed at promoting the use of better germplasm

and improving management techniques. It is useful to farmers who are engaged in sheep farming as a team of experts from the farm visit the local villages from time to time in order to solve problems related to Sheep and Goat rearing. It was observed that Sheep Management and Production Training programmes were conducted mainly in Haryana. In 2011-12 such programmes were conducted only in Haryana. Many of the states have not participated in this programme in most of the years. Karnataka has also conducted such programmes though not in such a large number as in Haryana. Informative pamphlets about sheep management are distributed in these programmes informing the sheep farmers about appropriate feed, weight gain after birth, possible diseases, vaccination schedules, etc.

6.10 : Goat strength at CSBF, Hissar :

The CSBF was set up in 1968 for production of cross bred rams for distribution to the sheep raising regions of the country. Since October 2003, a unit of Beetal goats has been introduced in the farm.

It can be observed from Table 6.9.1 that the balance goat strength at CSBF, Hissar is presently about 710 in 2014-15 and the same was 634 in 2013-14. The sale of goats (beetal bucks) has not been very impressive and the number sold has ranged from 51 in 2004-05 to 134 in 2009-10

Table 6.5: Goat Strength at CSBF, Hissar

Year	Strength Opening Balance	Purchase	Birth	Sold	Culled & Suction	Death	Balance
2003-04		113	61		-	09	165
2004-05	165	0	91	63	-	29	164
2005-06	164	0	180	51	15	37	241
2006-07	241	0	97	88	10	33	207
2007-08	207	55	265	56	09	49	413
2008-09	413	0	280	100	17	92	484
2009-10	484	64	288	134	53	138	511
2010-11	511	66	325	79	27	150	646
2011-12	646	0	268	85	97	149	583
2012-13	583	0	342	122	28	112	663
2013-14	663	0	251	82	76	122	634
2014-15 (ongoing)	634		117	11		30	710

Source : Office of Central Sheep Breeding Farm, Hissar

The bucks are sold mainly in Haryana. However, in 2013-14, 62.5 percent were sold to Karnataka. Most of the other states hardly purchased beetal goats from CSBF, Hissar. This can be seen from table 6.9.2

Table 6.6: State wise Distribution of Number of Bucks

Year	Haryana	Karnataka	Rajasthan	J&K	H.P	Punjab	UP	Maharashtra	Foreign Country	Kerala	Chhattisgarh	MP	Tamilnadu	Total
2003-04	--	-	-	-	-	-	-	-	-	-	-	-	-	
2004-05	8	-	-	-	21	-	-	-	-	-	-	-	-	29
2005-06	11	8	-	32	-	-	-	-	-	-	-	-	-	51
2006-07	24	-	5	33	-	-	-	-	-	-	-	-	-	62
2007-08	8	-	3	18	-	-	-	-	5	-	-	-	-	34
2008-09	43	7	-	25	-	-	-	-	-	20	-	-	-	95
2009-10	50	44	-	5	-	-	-	35	-	-	-	-	-	134
2010-11	47	22		-	-	-	-	10	-	-	-	-	-	79
2011-12	28	-	-	-	-	12	5	-	-	-	40	-	-	85
2012-13	13	43	13	21	-	-	-	-	-	-	-	25	7	122
2013-14	5	50	0	11	16	-	-	-	-	-	-	-	-	82
2014-15 (ongoing)	1	-	-	-	-	-	10	-	-	-	-	-	-	11

Source: CSBF, Hissar

6.11 Expenditure and Revenue of the Central Sheep Breeding Farm

The CSBF being one of the largest farms in Asia, it is not only important to know whether the activities on such a large farm are in tune with the objectives of the farm but also whether the activities are carried out efficiently in terms of expenditure incurred and the revenue generated. Table 6.11.1 presents figures of total revenue along with total expenditure for the concerned period. It can be seen that during this period, the revenue has been in the range of around 40 lakhs to 64 lakhs. In percentage terms, the revenue was around 12 percent of the expenditure in 2007.However, it has been less than 10 percent 2008 onwards.

Table 6.7: Total Expenditure and the Total Revenue, Hisar (Rs)

Year	Total expenditure	Total revenue	% of total revenue to total expenditure
2007	51986647	6305509	12.129
2008	49058239	4017525	8.189
2009	72398862	4469845	6.174
2010	84995139	5075462	5.971
2011	85384407	6435266	7.537
2012	86665297	5712413	6.591
2013	95695000	NA	NA
2014	945465759	5369337	5.624

Source: Office of Central Sheep Breeding Farm, Hissar

The break up of actual expenditure into plan and non plan expenditure shows that the non plan expenditure which mainly consists of salaries and wages was around 62 percent of the total expenditure in 2007. It has been gradually increasing and was 78 percent during in 2014. Taking together the plan and non plan expenditure, salaries and the office expenses constitute the major part of the total expenditure and almost 80 percent of the total expenditure has been spent on salaries and office expenses since 2010.The share of salary component is increasing while that of other major items is declining.

The revenue, in percentage terms, was around 12 percent of the expenditure in 2007.However, it has been less than 10 percent 2008 onwards. Classification of revenue receipts from individual items shows that the sale of rams is the most important item. The gap between revenue receipts and expenditure underlines the importance of revenue generating activities such as agricultural and allied activities. Though the data shows increasing gap between the expenditure and revenue, it can be noted that the major objective of the farm is multiplication of the cross breed animals and hence, profitability in terms of expenditure and revenue gap is of secondary importance.

6.12.1 Impact of Central Sheep Breeding Farm – Hisar

The sample farmers/shepherds were mainly small and marginal. The average flock size of the sample beneficiaries for was 28. Farming and sheep breeding were the main economic activities and about 10 percent of the sample farmers also practiced sericulture, 15 percent had poultry and about 8 percent had dairy animals. With respect to agriculture, the cropping pattern was dominated by ragi, maize, coconut, mango, mulberry, vegetables and fodder crops. Thus it was observed that agriculture and sheep rearing were very complementary to each other. Maize and fodder crops were cultivated to provide supplement feed for the animals and the droppings served as good quality manure for crop husbandry.

Table 6.12.1.1. shows the estimate of the annual income from an animal and stock available for breeding from the data and information collected by the sample farmers. From the sample of 30 beneficiaries who had purchased Rambouillet rams from Hissar farms, the average flock size of ewes was 28. On an average about 58 sheep were produced in a cycle of two years and about one-third were slaughtered. By and large, the purchase price of an animal was Rs 4000. The cost of transporting the animal from Hissar as well as labor cost in transit to Karnataka was borne by the government. By and large, the shepherds revealed that

the animals were grazed in the open with the help of family labour. Hence there was no major variable cost attached to these components. However, open grazing did not suffice for the animal in terms of nutrition and hence additional protein supplements were required which cost about Rs 1500 per animal over a two year cycle. Again vaccination and deworming for the animal is done free of cost by government veterinary hospital but the shepherd often has to bear additional costs in case of any other medical expenses which averages about Rs 400 per cycle.

Table 6.8 : Estimate of Approximate Average Annual Income per Animal in a Two Year Cycle

A	**Average size and composition of the flock**		
	Average flock size	1 Ram and 28 ewes	Normally 1 ram is crossed with 25 ewes
	Lambs born (number)	58	80 percent lambing percentage and 3 percent mortality
	Slaughtered	20	One third
B	**Variable cost** (Rs)	Per animal	Observations
1	Purchase price of animals	4000	Ram purchased from Hisar, ewes were local
2	Transport cost after purchase	Nil	Borne by Govt
3	Labour cost while in transit	Nil	Borne by Govt
4	Feeding cost	Nil	Daytime open grazing
5	Cost of feeding the high protein concentrates	1500	
6	Hired labour cost of grazing	Nil	Family labour utilised
7	Additional cost of vaccination and medicines	400	Vaccination and deworming is provided twice a year free of cost
		5900	
C	**Income from an Animal (Rs)**		
1.	Income from sale of animal to slaughter houses	7000	One third i.e. around 20 slaughtered and sold for on an average `7000 each.
2.	Sale of manure produced. Manure produced by one animal (0.3 tonnes in 2 years)	900	Average price of manure is `3000 per tonne
	Income from sale of wool	**30**	1 kg of wool is produced per anmal in a cycle of two years. Average price of wool sold is around **30 per kg**
D.	**Total income**	**7930**	
E.	**Net profit**	**2030**	Also, 38 animals remain (potential income). These animals serve a dual purpose. Firstly, they can again be used for breeding and thus increase the flock size. The same females can be used for breeding for another 5-6 years. The males can be used for breeding outside the flock. Secondly, they could fetch income as culled birds.

Source: Field level discussions

The income from sheep rearing emerges from various sources. After birth of lambs, they are normally reared for about 9 months, after which the elite ones are separated from those that do not perform well and found not suitable for breeding. Out of 58 kids born, about 20 were not found suitable for breeding and hence sold for being further slaughtered at an average price of Rs.7000. The manure produced by the sheep serves as excellent manure and by and large one animal produces 0.3 tonnes of manure in one cycle of two years. Since agriculture is also an important activity for the shepherds, often part of the manure is used in his farm while the balance is sold at a price of Rs.8000. Another source of income from sheep rearing is wool. However, discussion with all respondents revealed that production of wool was not their purpose. The wool produced was very coarse and also had virtually no market. Each sheep was sheared about two times a year and gave wool of about 1 kg in two years. The wool was normally sold for ` 30 per kg. There were also instances when the wool produced was totally discarded due to thin market and low quality. Further, due to small flock size, the quantity of wool produced was also negligible. The net profit per animal was observed to be `2030, over a two year cycle. However, the important point is that the shepherd still has 38 animals which serve as potential income. While the ewes can be used for breeding for 5-6 years, the males can be used for two years for breeding after which they are culled and hence fetch income.

6.12.2 Qualitative findings from field survey on cross breeding Rambouilet rams with local ewes :

As mentioned earlier, majority of the beneficiaries belonged to the Bangalore Urban and Rural Districts Sheep Breeders Association. A focused group discussion with these beneficiaries revealed that they were very progressive minded and made all attempts to increase their flock size. They were regular purchasers of Rambouillet breed from Hissar and the main reason for them to use this breed for cross breeding was the substantial potential of the lamb to gain weight. These farmers cross bred Rambouillet with local ewes such as Bellary or Bandur. After the birth of the cross bred lambs, the farmer retains the elite ones for cross breeding while others are to be sold after fattening. The farmer is aware that with proper concentrate feed and appropriate management practices, the Rambouillet cross bred can easily attain a weight of 60 kgs and he may be in a position to even realize a price of Rs. 18,000. There are also cases when Rambouillet sheep had attained weight of more than 80 kgs. Success story of an influential breeder showed that the sheep attained weight of 100 kgs. The weight of the lamb in case of Rambouillet is about 25 to 30 percent higher than local

breeds which is very advantageous to the farmer. Since the farmer is well aware of the potential weight gain of the cross bred animal, he takes extra care of the management practices which greatly reduces mortality. The lambing percentage can also go up to almost 100 percent. Increased weight gain of the cross bred animal as compared to indigenous breeds increases his profits, sometimes by 30 percent. In Karnataka there is huge demand for meat of Badnur variety as it has good taste. Therefore customers are willing to pay higher price for this meat. Therefore farmers are very interested in cross breeding this variety with Rambouillet so that they can also gain from increase in weight. Farmers are very confident that Rambouillet breed increases their profits and hence there were some instances when farmers who had purchased Rambouillet ram from Hissar approached a bank successfully for loan to purchase 50 ewes. This clearly indicates that farmers are very keen on cross breeding Rambouillet with local breeds for the purpose of increasing flock strength as well as more production of meat. The mortality rate of Rambouillet was also observed to be barely 2 to 3 percent as against 5 to 10 percent for local breeds. The farmers have also made efforts to upgrade their entire flock to Rambouillet which makes it suitable to maintain almost 100 percent for breeding.

6.12.3 Training Programmes by Central Sheep Breeding Farm, Hissar :

An important objective of setting the CSBF was to conduct extension and training programme so as to ensure that good quality rams are produced which can be further used for breeding and also mortality can be reduced. Accordingly two training programmes, viz Sheep Shearing Training Programme and Sheep Management and Production Training Programme are conducted and related to the entire management of sheep and goat. Accordingly, an attempt was made to study the benefits of these training programmes on the beneficiaries.

A field survey was conducted in Hissar and Karnataka and about 30 beneficiaries were addressed with a questionnaire about the usefulness of these programmes. In Hissar, farmers benefitted from both the programmes. With respect to sheep shearing, shepherds were trained on mechanical wool shearing as it can be done in short duration, increases the staple length of the wool and fetches a better return. Also participants were taught to grade the wool. In the state of Karnataka however, the farmers who purchased Rambouillet rams from Hissar, did not consider wool as an important source of income. Sheep rearing was done more for crossing local varieties with exotic breeds such as Rambouillet so that the quantity and quality of the product improves. The wool produced by shepherds in Karnataka was coarse variety with very limited demand and low price. In fact some farmers even discarded

the wool. These shepherds however greatly benefitted from Sheep Management and Production Training Programmes and the same was observed in Hissar. This programme is in collaboration with the Wool Board of Jodhpur which actually sponsors the farmers for this programme.

The shepherds who had undergone training were taught superior methods of management practices which greatly increased their productivity. They purchased Rambouillet breed from CSBF, Hissar while ewes were purchased from local markets or from breeders in villages. After undergoing the training programme the shepherds began to provide extra supplements to the animals mainly comprising of maize, cotton seed and other proteins. This helped the animals to gain weight which also increased their profits. Another important practice was to separate the advanced pregnant ewes from the main flock and take extra care in their feeding and management. Thus lesson on nutrition and health comprised a major component in the training programme because they play a major role in the overall productivity and well being of the flock. Also the need for prompt veterinary aid was explained to prevent mortality. Information on appropriate care of lambs and the need to provide them with leguminous fodder as supplementary feed also was also imparted to ensure their survival. The management of weaning and nutrient requirements of growing lambs was explained.

After undergoing training all shepards mentioned that they had greatly benefitted from the training programme. There was improvement in their management practices, decline in mortality rate, and most important was the weight gain in the animal. Some farmers mentioned that the mortality rate which was 10 to 15 percent reduced to 5 percent for lambs and 2 percent for adults. They were also making attempts to maintain the germ plasm of Rambouillet. Farmers who attended the training programme said that they would strongly recommend it to other farmers. The additional benefit was that the farmers who underwent training imparted the knowledge and management practices to other farmers in the neighborhood, still did not get the opportunity to attend the training programme. In fact the Gram Panchayat members of a village attended the programme and spread the knowledge to those practicing sheep breeding in the village. The farmers felt motivated to increase their flock size after training and some even applied to banks for financial assistance to purchase more sheep. This indicates the level of confidence built up in the shepards after undergoing training. Overall training in management of flock enabled them to increase the weight of the animal, reduce mortality substantially, improve the quality of the breed and increase lambing percentage.

6.12.5. Breeding of Beetal Goats Supplied by CSBF, Hissar :

It was noted earlier that in CSBF, Hissar a unit of Beetal goats was introduced in the farm since 2003 and from 2004-05 beetal bucks have been distributed to various states. Beetal bucks have been mainly sold to Haryana, Jammu & Kashmir and Karnataka. In 2012-13, about 35 percent of beetal goats that were supplied by CSBF, Hissar were sold to Karnataka (i.e. 43 beetal goats), while in 2013-14 it was 60 percent (i.e.50 beetal goats). Hence focus group discussion with shepards rearing goats in Karnataka was undertaken, so as to find out the benefits and constraints of beetal goat.

The shepards in Karnataka had preference for beetal goats because they serve a dual purpose. They have a good milk producing capacity of about 2 litres per day and also good mutton breed as compared to the local breeds of Karnataka. Presently there are no dairy goat breeds in Karnataka although there is need to increase its production.

The notable feature of goat rearing is that local goats have the capacity to often give twins or even triplets. Shepards who had purchased beetal bucks, revealed that this breed had the capacity to gain weight and their aim was to cross it with local variety and thus perpetuate the breed. Discussions with beneficiaries revealed that 30 percent of local goats give twins while 15 to 20 percent give triplets. There have even been cases when local goats give quadruplets. Thus when these local breeds cross with beetal goats, there is great scope to increase the flock size. As in case of sheep, the elite ones are kept for further breeding, while the rest are reared till they gain sufficient weight and then sold for meat. Although farmers in Karnataka, have only started purchasing beetal bucks in the recent past, they revealed that they were very satisfied and were confident that this breed has great potential. This is because presently the local breeds of goat in Karnataka do not have milk yielding capacity although there is demand for goat milk. It is believed that goat milk has medicinal properties and also with increase in per capita incomes, the demand for milk for daily consumption is increasing. Hence farmers are motivated to upgrade their local goat breeds for dual purpose. Betal goats are also able to adapt themselves to the local environment of Karnataka and hence if farmers use them for crossing with local breeds there will be increase in milk production, improved quality of meat and increase in flock size. This will increase their net earnings and hence improve their economic status.

As in case of sheep, most shepards resorted to open grazing for goats with the help of family labor. Hence the costs were minimal as other veterinary services were provided by government free of cost. However, since farmers realized the potential of beetal buck, they

stated that they had started giving them concentrates also as it greatly increased the weight of the animal and thereby increased their net returns.

Overall, after discussions, it appeared that farmers are quite optimistic about rearing beetal bucks and also cross breeding with local varieties.

6.13 Production Potential of the Rams Supplied by CSBF Hisar

The above analysis reveals a clear preference of the sample farmers in Karnataka for the crossbred rams supplied by CSBF, Hissar. The farmers are aware of the importance of using crossbred animals and preservation of germ plasm of a breed like Rambouillet. Hence, the beneficiary farmers are preserving the elite and strong animals specifically for breeding. The positive impact of the rams supplied by CSBF Hisar is clearly observed. It is generally observed that in a cycle of two years, one ram would be crossbred **once** with 25 ewes (thrice in two years).Considering lambing percentage to be 80 percent and mortality of lambs to be 3 percent, a minimum of 58 lambs would be born in 2 years and 29 in one year from one ram (Table 6.13.1). These percentages can be applied to the total sheep sold by the CSBF Hisar in various states. This would give us a rough estimate of the extent to which sheep might have been multiplied over the years.

Table 16.3.1 shows that from a total of 27818 rams sold by CSBF, more than 8 lakh lambs (col.2) could have been born during 1981-82 to 2013-14. Assuming mortality rate to be 3 percent in case of Rambouillet and male female ratio to be 50 percent, the number of total rams born out of initially sold rams is found out. Col.5 shows that around 3 lakh rams appear to have been born over a period of time. Thus, each ram sold by CSBF Hisar has multiplied by 14 times (column 8). Further, the first generation male offsprings fit for breeding appear to have multiplied by 9 times (col 9). This column shows that the original animals sold can produce around 9 times more offsprings ready for breeding and repeat the same cycle to produce more rams.

As is revealed from the field survey, the desired level of multiplication of rams would be attained when proper training is imparted to the breeders. Training helps in reducing the mortality and improve lambing percentage and improve overall health of the animals. The more the number of elite and strong rams, the more is the number of animals retained for breeding.

Overall, it appears, that CSBF, Hissar is providing parent stock of Rambouillet breed of rams which are being multiplied and thus the stock is increased and efforts to preserve the

germ plasm is also made. Farmers are satisfied with this breed in view of its weight gain capacity and subsequent increase in net returns.

Table 6.9: Sheep Strength (Number) at CSBF, Hisar (1981-82 to 30-06-2014)

	Rams sold by CSBF Hisar	Lambs likely to be born from rams sold	Lambs alive (after considering 3 % mortality)	Total lambs born and alive	Rams born (50 % male – female ratio)	Culled birds, not fit for breeding (33 % of males born and alive	Rams fit for breeding	Rams born/ rams sold by CSBF	Rams fit for breeding / rams sold by CSBF
	1	2	3	**4**	5	6	**7**	8	9
1981-82	644	18676	560	18116	9058	2989	6069	14	9
1982-83	254	7366	221	7145	3573	1179	2394	14	9
1983-84	742	21518	646	20872	10436	3444	6992	14	9
1984-85	1056	30624	919	29705	14853	4901	9951	14	9
1985-86	781	22649	679	21970	10985	3625	7360	14	9
1986-87	880	25520	766	24754	12377	4084	8293	14	9
1987-88	120	3480	104	3376	1688	557	1131	14	9
1988-89	230	6670	200	6470	3235	1068	2167	14	9
1989-90	2521	73109	2193	70916	35458	11701	23757	14	9
1990-91	808	23432	703	22729	11365	3750	7614	14	9
1911-92	614	17806	534	17272	8636	2850	5786	14	9
1992-93	404	11716	351	11365	5682	1875	3807	14	9
1993-94	799	23171	695	22476	11238	3709	7529	14	9
1994-95	988	28652	860	27792	13896	4586	9310	14	9
1995-96	1228	35612	1068	34544	17272	5700	11572	14	9
1996-97	1069	31001	930	30071	15035	4962	10074	14	9
1997-98	924	26796	804	25992	12996	4289	8707	14	9
1998-99	794	23026	691	22335	11168	3685	7482	14	9
1999-00	581	16849	505	16344	8172	2697	5475	14	9
2000-01	419	12151	365	11786	5893	1945	3948	14	9
2001-02	944	27376	821	26555	13277	4382	8896	14	9
2002-03	1025	29725	892	28833	14417	4757	9659	14	9
2003-04	560	16240	487	15753	7876	2599	5277	14	9
2004-05	1420	41180	1235	39945	19972	6591	13381	14	9
2005-06	884	25636	769	24867	12433	4103	8330	14	9
2006-07	733	21257	638	20619	10310	3402	6907	14	9
2007-08	694	20126	604	19522	9761	3221	6540	14	9
2008-09	863	25027	751	24276	12138	4006	8133	14	9
2009-10	976	28304	849	27455	13727	4530	9197	14	9
2010-11	1541	44689	1341	43348	21674	7152	14522	14	9
2011-12	950	27550	827	26724	13362	4409	8952	14	9
2012-13	725	21025	631	20394	10197	3365	6832	14	9
2013-14	646	18734	562	18172	9086	2998	6088	14	9
Total	27817	806693	24201	782492	391246	129111	262135	14	9

Source : calculated from information collected during field visit.

6.14 Policy Implications :

From the above study on Central Sheep Breeding Farm, Hissar, the following policy recommendations can be observed :

1. From the livestock census it can be observed that there is no satisfactory increase in sheep and goat production over the years. Infact, there was a decline in sheep production from 2007 census to 2012 census by 11 percent, while in case of goat the decline in the corresponding period was 4 percent. This is certainly not a positive trend, especially in view of the increase in demand for meat due to increase in population and changing pattern of consumption in favor of protein rich food. Also the National Livestock Policy 2013 focuses on conservation of animal bio diversity and conservation and genetic improvement of important indigenous breeds of livestock in the country. However, in view of increasing demand for meat and wool in the domestic as well as international markets and lower productivity of indigenous livestock, propagation of crossbred sheep and goat assume importance as their products help in bridging the gap between the demand and supply and in improving incomes of sheep and goat breeders. Propagation of sheep and goat will bring along with it need for fodder. As availability of grazing land is depleting, productivity of fodder crops has to increase so that stall feeding comprising of appropriate nutrients is ensured. Responses from the field revealed that due to demonstration effect of the success stories of the crossbred rams from Hissar, their popularity is increasing in various talukas of South Karnataka. However, often, the demand for crossbred animals outpaced their supply from CSBF.

Further, the share of crossbred sheep in total sheep population as per 2012 Livestock census is only 5.81 percent while 94.19 percent is indigenous. Therefore farms such as Central Sheep Breeding Farm, Hissar have an important role to play. Such farms must increase the scale of their operations and supply more crossbred rams and goats to various states, so that the population of these animals will increase alongwith improvement in breed.

2. Wool production which was 48.4 million kgs in 2000-01, has declined to 44.4 million kgs in 2011-12. This is again a cause for concern. The demand for wool exceeds the production and hence the shortfall is met through imports. As per National Fibre Policy, the consumption of wool is expected to be about 208 million kgs by 2016-17, i.e by end of Twelfth Five Year Plan. If production continues to stagnate at 44 million kgs, India will have to import 164 million Kgs of wool to meet its requirements (http://texmin.nic.in). Hence increased production of wool is also an important policy issue which needs to be addressed. Value

added products of wool from India are an important export item and hence to promote such exports, it is necessary to increase wool production. Therefore farms such as Central Sheep Breeding must be encouraged to produce crossbred sheep which besides being used for breeding, will also increase wool production.

3. The bulk of Indian wool is of coarse quality and used mainly in the hand-made carpet industry. Since indigenous production of fine quality wool required by organized mills and decentralized hosiery sector is very limited, India has to depend mainly on imports to meet this gap. The imports of raw wool were 77.16 million kgs in 2012-13. Discussion with shepards revealed that often the quality of the wool from sheep breeding was so poor that there was virtually no demand for it. Data on import price of raw wool indicates that the price at which wool is imported is around ` 233 per kg (http://texmin.nic.in) whereas shepards in the surveyed districts revealed that the wool was sold for about ` 31 per kg. The low price in the domestic market also reflects the poor quality of wool produced. This again indicates that policy must be directed towards producing quality wool. Farms such as CSBF, Hissar must not only increase the scale of their operations to improve production of wool, but also extend and expand their training programmes so more and more sheep and goat farmers can benefit from scientific methods of sheep management practices, training in machine shearing of sheep, etc. This will increase the production of wool and also improve its quality.

4. Discussions with officials in Karnataka Sheep and Wool Development Corporation which is a major purchaser of rams from CSBF, Hissar revealed that the number of training programmes conducted by CSBF is insufficient and there is huge demand for sheep breeders to attend the programme. It is therefore necessary to increase the frequency of their training programmes so that more and more farmers can take advantage. This will help to reduce mortality rate of sheep produced and also gradually increase flock size. The analysis reveals the extent of multiplication of rams that could have taken place over the years. It is felt that the breeding programme will be more successful if training programmes are adequately conducted not only at the CSBF level, but also at the taluka and village level.

5. Since increase in sheep and goat population, especially crossbred varieties is definitely required, farms such CSBF, Hissar must be promoted. Therefore for efficient functioning of the farm, the existing infrastructure in the farm needs to be upgraded. Discussion with officials at CSBF, Hissar revealed the following with respect to improving the efficiency of the farm :

(a) A circular shed with full automation is needed so that it can be managed with less labour as it will help to reduce mortality. The present shed is open on all sides and hence there is no protection from cold which leads to high mortality. Automated sheds will help to feed the animals and provide them with water, maintain labor costs and also increase the capacity of sheep and goat. Presently there is under capacity utilization and there is scope to purchase at least 2000 ewes and 500 beetal goats. Another important point is that each state requires a different breed of sheep depending upon climatic conditions. Therefore with appropriate expertise, suitable crossbred sheep and goat can be purchased for further breeding. Full capacity utilization of the farm will go a long way in increasing sheep and goat population. Wool production and its quality will also improve.

(b) The expenditure on the farm can be reduced by installing solar panel as it will save electricity and hence economize on expenditure.

(c) There is need for appropriate fencing in order to maintain hygiene at lambing shed. Proper bio-security must also be maintained. Boundary wall should also be constructed to avoid thefts.

(d) Appropriate equipment must also be purchased such as land leveler, mini weather stations, etc. and existing infrastructure must be renovated.

(e) There is need for renovation of Post-Mortem and incinerator room. The farm also needs latest equipment in the diagnostic laboratory in order to increase lambing percentage. A quarantine shed must also be constructed at the farm so as to accommodate diseased animals for a longer period. An electronic weighing machine is also required for weighment of animals as well as wool.

(f) Nearly 62 percent of the cultivable land is irrigated. This land can be utilized for promoting agricultural and allied activities. The farm can grow fodder crops such as oats, Lucerne, Berseem, Mustard (Chinese cabbage), cow pea, guar which can be consumed by the animals on farm and marketed also. The farm also has land which is uncultivated and also unirrigated. This land can be put to suitable use with the help of available manpower by improving irrigation facilities and increasing agricultural activities and thereby generate revenue. Alternatively, the farm can enter into contract for getting fodder. The farm can also mechanize its agricultural operations, so that efficiency is maintained.

(g) The farm is also facing other problems such as reluctance of Haryana Government to renew the lease. If the lease period of the land is not extended, the activities of the farm will automatically shut down. In this case an alternative suitable solution has to be sought such as transfer of animals to state farms, etc.

(h) In view of increasing demand for wool, the production of wool on the farm as well as its marketing can be increased. One of the alternatives for improving and increasing marketing of wool may be through institutions such as Khadi Gramodyog.

If the above mentioned improvements in infrastructure can take place so that there is more automation in terms of equipment required for low mortality, the quality of crossbred rams that are produced will be better. Also backward integration through cultivation of suitable crops and mechanization of farm operations will provide suitable fodder for animals. The scale of operations on the farm can also increase so that states can benefit from parent stock. If all round efforts as suggested are initiated, it may help to make CSBF, Hissar a centre for excellence and also profit making farm. Highly skilled personnel are also required to achieve this objective.

The overall picture that emerges is that CSBF, Hissar at present is facing limitations on all fronts – technical manpower, infrastructure, unviabilty of operations and insecure lease period. At the same time, the objectives for which it was established way back in 1968 still hold today and infact the need for such farms is increasing. Population pressure, changing consumer preference for meat products in view of their protein content, urbanization and rise in per capita incomes are some reasons for increase in demand for meat. Domestic production of wool is also not sufficient to meet the demand. Further, both meat and wool also have export potential and are therefore a valuable source of foreign exchange earnings. Boosting their production must therefore have a place in the policy agenda of the government. Therefore if CSBF, Hissar is unable to get rehabilitated for the above mentioned reasons, the solution lies in promoting state farms with suitable breeds coupled with extension services so that the scale of operations can increase. This will help the country to achieve self sufficiency in meat and wool and also take advantage of export earnings.

Annexure I
Comments on the report received from Agro Economic Research Centre, Sardar Patel University, Anand

Evaluation of Central Sector – Central Sheep Breeding Farm, Hissar

Agro-Economic Research Centre
Gokhale Institute of Politics and Economics
(Deemed to be University)
Pune – 411 004

Reviewer Comments:

- **Title of the draft report examined:**
  "Evaluation of Central Sector – Central Sheep Breeding Farm, Hissar"

- **Date of receipt of the Draft report:** March 29, 2015.

- **Date of dispatch of the comments:** April 25, 2015.

- **Comments on the Objectives of the study:**
  All the objectives of the study have been addressed.

- **Comments on the methodology**
  The study is based on primary and secondary data. Data regarding functioning of the scheme has been obtained from CSBF, Hissar and secondary data on status of sheep and goat population as well as their products was obtained from Department of Animal Husbandry, Dairying and Fisheries, Ministry of Agriculture, Government of India. The methodology proposed for the collection of field data and tabulation of results has been followed.

- **Comments on analysis, organization, presentation etc.**

(i) The report is organised into six chapters. Chapter I presents the introduction on Sheep development activity in India as well as on Central Sheep Breeding Farm, Hissar, followed by status of sheep and goat population in India, livestock sector (sheep & goat) and government initiatives, objectives and methodology of the study. In chapter 2, the flock strength of Central Sheep Breeding Farm is discussed while in chapter 3, the status of CSBF, Hissar is presented. The expenditure and revenue of CSBF is indicated in chapter 4. The breeding potential of rams/bucks is attempted in chapter 5 and last chapter presents the policy implications of CSBF, Hissar are presented.

(ii) **Chapter I**-

- Numbered the tables as Table 1.1, 1.2, 1.3…….
- Table 1.3.1 and 1.5.1 can be merged.

(iii) **Chapter II**-

- Add unit to data sets in Tables and numbered the tables as Table 2.1, 2.2, 2.3…….

(iv) **Chapter III**-

- Correct the Table number 1.2.1 (page 29) as Table 3.1 and subsequent tables in this chapter
- Add unit to data sets in Tables and numbered the tables as Table 2.1, 2.2, 2.3…….

(v) **Chapter IV**-

- Correct the Table 2 (page 29) as Table 4.2 and subsequent tables in this chapter
- Numbered the tables as Table 4.1, 4.2, 4.3…….

(vi) **Chapter V**-

- Please mention in table title- name of the state-, i.e. Karnataka (Table 5.1.1, page 46 and Table 5.1.2, Page 47).
- Numbered the tables as Table 5.1, 5.2, 5.3…….

(vii) **Chapter VI -**

- This chapter is well written and focused.

General remarks

- Add the References after Chapter VI
- Add executive summary to the report

Overall view on acceptability of report

- The draft report may be accepted after incorporation of comments suggested as above.

Annexure II

Action Taken Report

Action taken by the authors based on the comments received from the reviewing centre of the study

All the comments made by the coordinator of the study have been addressed at the appropriate place in the report.

Note :

In addition to the report sent to Reviewing Centre – AERC, Sardar Patel University, Anand, a presentation of the study was also made to Department of Animal Husbandry, Dairying and Fisheries, New Delhi, on 30th April, 2015 under Joint Secretary (APF). The study was discussed thoroughly and appropriate feedback was given. On 5th August 2015, the Institute received further points to be included in the draft. However, at this stage many points could not be included as the study focused more on terms of reference set during initiation of the study. We hope that the findings will be useful to DADF.