INNOVATIVE PROJECT FOR “GENETIC IMPROVEMENT OF SHEEP AND GOAT” (GISG) UNDER NATIONAL LIVESTOCK MISSION

2017
INNOVATIVE PROJECT FOR “GENETIC IMPROVEMENT OF SHEEP AND GOAT” (GISG) UNDER SUB-MISSION OF LIVESTOCK DEVELOPMENT

1. CURRENT STATUS

1.1 Population and growth rates of Sheep & Goat:

Sheep and goats are important species of livestock for India. They contribute greatly to the agrarian economy, especially in areas where crop and dairy farming are not economical, and play an important role in the livelihood of a large proportion of landless as well as small and marginal farmers.

**CHART-I: No of Household Enterprises having Cattle, Buffalo, Sheep, Goat & Pig**

**CHART-II: Population statistics of Sheep & Goats from the 19th Livestock Census 2012**

<table>
<thead>
<tr>
<th>Small Ruminant</th>
<th>Population as per 2012 census</th>
<th>No of farmers holders</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sheep</td>
<td>65 million</td>
<td>4.55 million</td>
</tr>
<tr>
<td>Goat</td>
<td>135 million</td>
<td>33.01 million</td>
</tr>
</tbody>
</table>

The population of Sheep is 65 million, Goat is 135 million. Further, there is a change of population of (-) 9.07% in Sheep and (-) 3.82% in Goat in the period 2007 to 2012 livestock census. More so, this decline is (-)16.82% in case of male indigenous Sheep and (-)7.79% in male Goat, which is attributed to more culling / death of the male animals that is more reduction of the male goats/sheep population than can be reproduced of extant reproduction rate. This is attributed as being due to increasing demand of meat in the country as compared to the available animal from the natural reproduction rate. The long term consequence of this could be shortage of goat and sheep meat which in turn has impact on the nutritional requirement fulfillment of the country’s population. This will have adverse impact on prices of the meat and then consequential demand for imports which would be detrimental to the goat/sheep farmers, normally landless and small/marginal farmers who would loose the opportunity of increasing their income should there have been support from government to produce more goat/sheep.
As per available data, the sheep population growth rate has been 1.19% CAGR for the period 1992-2012 as per chart below with a decline in the period 2007-12:


This also goes to show that the Sheep development activities undertaken in different States of the country during recent years have not made much impact. This is because Sheep-rearing continues to be a backward subsistence based side occupation, primarily in the hands of poor, landless or small and marginal farmers who own either an uneconomical holding or no land at all, and thus graze their sheep on natural vegetation and crop stubbles supplemented by tree loppings.

Similarly, almost no developmental effort has been made for improving goats. The density of livestock per unit of grazing area has greatly increased, owing to increases in their numbers and the shrinkage of grazing land. Notwithstanding, the Goat male and female population growth rate has been 0.78% CAGR and 0.81% CAGR respectively for the period 1992 to 2012 as per chart below with a negative growth rate in the period 2007-12 as may be seen in the chart below:

1.2 Meat, Milk and Wool Production

The meat production in the country as per 2014-15 data was 6.6 million tons with a per capita availability of 4.94 kg. The total meat production in 2014-15 by Sheep was 529.03 thousand tons and by Goat 914.13 thousand tons.

The meat type break up for the country is as below:

**CHART-V: Species-wise Meat Contribution (%)**

The total Goat milk production in 2014-15, was 5180.18 thousand tones against total milk production of 146 Million tones, i.e. 3.23%. The wool production from sheep on the other hand in 2014-15 was 4.81 billion tons.

**CHART-VI: Species-wise Milk Contribution (%)**

**CHART-VII: Species-wise Wool Contribution (%)**
2. NEED FOR DOUBLING THE SHEEP AND GOAT MEAT, MILK AND WOOL:

Our country has 26 registered breeds of Goat and 42 registered breeds of Sheep. Out of these, the high genetic merit (more meat / milk / wool yield per animal) indigenous registered breeds there exist only 12 breeds of Goat and around 14 breeds of Sheep. The 12 breeds of high genetic merit Goat have a population of 4.55 crore out of total population of 13.5 crore. Again, the 14 breeds of Sheep with high genetic worth have a population of 1.77 crore out of the total population 6.5 crore.

CHART-VIII: Total breed and non-descript population of Sheep and Goat

<table>
<thead>
<tr>
<th></th>
<th>Population as per 2012 census</th>
<th>Number of prominent indigenous breeds</th>
<th>Number of non-descript</th>
<th>% of non-descript</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sheep</td>
<td>65 million</td>
<td>17.7 million</td>
<td>25.78 million</td>
<td>38.68%</td>
</tr>
<tr>
<td>Goat</td>
<td>135 million</td>
<td>45.5 million</td>
<td>82.81 million</td>
<td>61.26%</td>
</tr>
</tbody>
</table>

CHART-IX: Comparative chart for prominent Indigenous Goat Breeds

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Name of Breed</th>
<th>Original State</th>
<th>Body weight Male adult</th>
<th>Body weight Female adult</th>
<th>Dressing %</th>
<th>Carcass weight Male adult</th>
<th>Carcass weight Female adult</th>
<th>Ave. daily Milk yield (in kg)</th>
<th>Breed wise population* (lakhs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Sirohi</td>
<td>RJ</td>
<td>50.37</td>
<td>22.54</td>
<td>47.3</td>
<td>23.83</td>
<td>10.66</td>
<td>0.41</td>
<td>30.77</td>
</tr>
<tr>
<td>2</td>
<td>Marwari</td>
<td>RJ</td>
<td>33.18</td>
<td>25.85</td>
<td>56.3</td>
<td>18.68</td>
<td>14.55</td>
<td>0.53</td>
<td>71.83</td>
</tr>
<tr>
<td>3</td>
<td>Beetal</td>
<td>PJ</td>
<td>59.07</td>
<td>34.97</td>
<td>49.68</td>
<td>29.35</td>
<td>17.37</td>
<td>1.16</td>
<td>7.15</td>
</tr>
<tr>
<td>4</td>
<td>Jhakrana</td>
<td>RJ</td>
<td>57.8</td>
<td>44.48</td>
<td>47</td>
<td>27.17</td>
<td>20.91</td>
<td>3.18</td>
<td>14.46</td>
</tr>
<tr>
<td>5</td>
<td>Black Bengal</td>
<td>WB</td>
<td>32.37</td>
<td>20.38</td>
<td>55.8</td>
<td>18.06</td>
<td>11.37</td>
<td>NA</td>
<td>206.51</td>
</tr>
<tr>
<td>6</td>
<td>Jamnaparai</td>
<td>UP</td>
<td>44.66</td>
<td>38.03</td>
<td>48.16</td>
<td>21.51</td>
<td>18.32</td>
<td>1.06</td>
<td>39.13</td>
</tr>
<tr>
<td>7</td>
<td>Barbari</td>
<td>UP</td>
<td>36.7</td>
<td>20.3</td>
<td>47.5</td>
<td>17.43</td>
<td>9.64</td>
<td>0.71</td>
<td>62.82</td>
</tr>
<tr>
<td>8</td>
<td>Mehsana</td>
<td>GJ</td>
<td>37</td>
<td>32</td>
<td>58</td>
<td>21.46</td>
<td>18.56</td>
<td>1.32</td>
<td>6.11</td>
</tr>
<tr>
<td>9</td>
<td>Zalwadi</td>
<td>GJ</td>
<td>38.84</td>
<td>32.99</td>
<td>47</td>
<td>18.25</td>
<td>15.51</td>
<td>2.02</td>
<td>5.32</td>
</tr>
<tr>
<td>10</td>
<td>Berari</td>
<td>MH</td>
<td>36</td>
<td>33</td>
<td>48</td>
<td>17.28</td>
<td>15.84</td>
<td>NA</td>
<td>1.92</td>
</tr>
<tr>
<td>11</td>
<td>Kutchi</td>
<td>GJ</td>
<td>46.96</td>
<td>39.91</td>
<td>47</td>
<td>22.07</td>
<td>18.76</td>
<td>1.84</td>
<td>4.43</td>
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<tr>
<td>12</td>
<td>Surti</td>
<td>GJ</td>
<td>29.5</td>
<td>32.03</td>
<td>46.6</td>
<td>13.75</td>
<td>14.93</td>
<td>2.50</td>
<td>4.06</td>
</tr>
</tbody>
</table>

Total population : 454.51

*as per Breed Survey Book 2013

From the above chart it is clear that out of the total goat population of 13.5 crore, the population of 12 out of 26 registered breeds of Goat is merely 4.55 crore (as per Breed Survey Book, 2013) that is about 33.7%.
CHART-X: Comparative chart for prominent indigenous Sheep Breeds

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Name of Breed</td>
<td>Pure</td>
<td>Grade d</td>
<td>Cross Bre d</td>
<td>Male</td>
<td>Fem ale</td>
<td>Male</td>
</tr>
<tr>
<td>1</td>
<td>AP Deccani</td>
<td>20.4</td>
<td>14.8</td>
<td>0.4</td>
<td>104.9</td>
<td>39</td>
<td>29</td>
</tr>
<tr>
<td></td>
<td>KR</td>
<td>8.09</td>
<td>9.95</td>
<td>0.32</td>
<td>39.33</td>
<td>39</td>
<td>29</td>
</tr>
<tr>
<td></td>
<td>MH</td>
<td>8.74</td>
<td>0.29</td>
<td>0.54</td>
<td>16.06</td>
<td>38</td>
<td>30</td>
</tr>
<tr>
<td>2</td>
<td>AP Nellore</td>
<td>69.4</td>
<td>48.0</td>
<td>0.4</td>
<td>104.9</td>
<td>38</td>
<td>30</td>
</tr>
<tr>
<td>3</td>
<td>TN Nilgiri</td>
<td>0.02</td>
<td>NA</td>
<td>3.8</td>
<td>13.41</td>
<td>30</td>
<td>25</td>
</tr>
<tr>
<td>4</td>
<td>TN Coimbatore</td>
<td>0.29</td>
<td>0.41</td>
<td>3.8</td>
<td>13.41</td>
<td>26</td>
<td>21</td>
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<tr>
<td>5</td>
<td>TN Mecheri</td>
<td>12.12</td>
<td>2.18</td>
<td>3.8</td>
<td>13.41</td>
<td>35</td>
<td>24</td>
</tr>
<tr>
<td>6</td>
<td>KR Bellary</td>
<td>13.4</td>
<td>4.59</td>
<td>0.32</td>
<td>39.33</td>
<td>36</td>
<td>27</td>
</tr>
<tr>
<td>7</td>
<td>SK Bonpala</td>
<td>0.02</td>
<td>0</td>
<td>0.01</td>
<td>9</td>
<td>58.9</td>
<td>51.2</td>
</tr>
<tr>
<td></td>
<td>WB</td>
<td>2.30</td>
<td>0.01</td>
<td>0.20</td>
<td>3.19</td>
<td>34</td>
<td>23</td>
</tr>
<tr>
<td>8</td>
<td>RJ Chokla</td>
<td>2.52</td>
<td>1.05</td>
<td>0.39</td>
<td>24.12</td>
<td>41</td>
<td>29</td>
</tr>
<tr>
<td>9</td>
<td>WB Chottanagpuri</td>
<td>3.19</td>
<td>0.03</td>
<td>0.20</td>
<td>3.19</td>
<td>19.4</td>
<td>19.7</td>
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<td></td>
<td>JH</td>
<td>1.98</td>
<td>0</td>
<td>0.08</td>
<td>3.64</td>
<td>31</td>
<td>26.59</td>
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<tr>
<td>10</td>
<td>HP Gaddi</td>
<td>1.74</td>
<td>0.09</td>
<td>3.01</td>
<td>1.97</td>
<td>31</td>
<td>26.59</td>
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<tr>
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<td>RJ Marwari</td>
<td>24.6</td>
<td>8.57</td>
<td>0.39</td>
<td>24.12</td>
<td>30.66</td>
<td>26.11</td>
</tr>
<tr>
<td>12</td>
<td>UP Muzzaffarnagar</td>
<td>0.98</td>
<td>0.78</td>
<td>0.80</td>
<td>7.77</td>
<td>50.21</td>
<td>39.61</td>
</tr>
<tr>
<td>13</td>
<td>GJ Patanwadi</td>
<td>4.73</td>
<td>2.90</td>
<td>0.26</td>
<td>1.45</td>
<td>33.34</td>
<td>26.53</td>
</tr>
<tr>
<td>14</td>
<td>RJ Malpura</td>
<td>2.43</td>
<td>0.93</td>
<td>0.39</td>
<td>24.12</td>
<td>33</td>
<td>25.6</td>
</tr>
<tr>
<td>15</td>
<td>KR Mandya</td>
<td>2.44</td>
<td>2.29</td>
<td>3.8</td>
<td>23.5</td>
<td>34.8</td>
<td>23.5</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>179.39</td>
<td>96.87</td>
<td>19.11</td>
<td>447.32</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*as per Breed Survey Book 2013

From the above chart it is clear that out of the total Sheep population of 6.5 crore, the population of 14 out of 42 registered breeds of Sheep is merely 1.79 crore (as per Breed Survey Book, 2013) that is about 27.23%.

With increase in human population and changing trends in food habits, the demand for meat is increasing, thereby posing a great challenge to meet the requirement. Therefore, for the sake of improving the farmer’s income by eventually having a more productive asset and even otherwise to fulfill the growing and future meat/milk demand potential, there is need to improve, rather than merely increase, the population of animals with low yields so that the dual problem of adequate meat, milk and wool is addressed even while increasing the farmer’s income from per unit holding of the Goat/Sheep and hence making it a more productive income generating asset.
Quite clearly therefore, the emphasis has to be given to improving the existing Sheep and Goat population with comparatively high genetic merit animals through genetic improvement of better breed from amongst registered indigenous breeds and non-descript animal population.

This can be achieved by selection of Rams (Sheep) and Bucks (Goat) of high genetic merit for breeding and also incentivizing the owners so that the select high genetic merit Rams and Bucks are not sold for slaughter but used for natural or AI service as required and possible. The current pattern of producing low genetic merit animals due to little selection of Rams/Ewes and Bucks/Does used for breeding, as well as much inter-mating among available animals as the sheep/goat rearers are mostly landless labourers and marginal farmers who also lack the resource of high genetic merit animals and even less knowledge and merit of scientific management of small ruminants.

The above facts also hold good for the more productivity per animal for milk and wool; the only difference being in selecting the breed having a higher productivity index with respect to milk, meat or wool respectively as per above charts.

Thus, to increase the meat, milk and wool production per se and per animal, breed improvement is the key which would at the same time help in increasing the farmers’ income as part of the achievement of the vision of the Hon PM for doubling farmers’ income.

3. STRATEGY FOR GENETIC IMPROVEMENT

3.1 Gap Analysis

The per capita consumption of meat in developed/industrialized countries is much higher compared with developing countries. Consumption of meat in the USA is 124 kg per capita per year (340 g/day). The global average meat consumption is 38 kg per year (104 g/day).

Countries whose population consumes the least amount of meat are located in Africa and Asia. The ten lowest-ranking countries in meat consumption consume 3–5 kg per capita per year. However, in case of India, it is much less in comparison to even African countries such as Ethiopia, where the average annual meat consumption per capita is estimated to be 8 kg/year as compared to India's per capita meat availability being only 4.94 kg per year. Thus it is apparent that there exists a huge gap of meat availability between India (4.94 kg per year) and the global average of 38 kg per year.

Analysed from the point of required nutrition, as per WHO standards, the daily requirement of protein is 63 gm per day. In average Indian diet conditions, 50.75 gm per day per person (approx.) for the vegetarian population, and about 55.25 gm per day per person (approx.) for the non-vegetarian population is available. Notwithstanding this, the average deficit of protein requirement is approximately 12.25 gm for vegetarian and 7.75 gm for non-vegetarian.

Moreover, by 2050, it is expected that the population in India would increase by 34% and to fulfill the dietary recommended levels of the livestock products by Indian Council for Medical Research (ICMR) for a population of 1.7 billion people, the livestock sector should produce 186.2 million tons of milk, 18.7 million tons of meat and 306 billion eggs per annum. This means that the current level of production, the milk, meat and eggs would have to increase by 1.5, 3 and
4.7 times respectively. Fulfilling the feed demand of this huge livestock from same resource base of land and water is going to be a huge challenge. Therefore, rather than increasing the number of animals, improving the genetics through breed improvement programme might be a better strategy to address the required demand for animal protein.

This becomes a greater challenge, as there exists a wide variation among Indian small ruminant breeds with respect to potential growth rates and mature weight which may be considered as a gap to fulfilling the meat demand as is clearly brought out in the charts above.

3.2 Action Plan

Based on the above Gap Analysis, a 2 step Action Plan with focus on separate identified breeds for meat, milk and wool production is proposed. The 2 steps are:

1. Genetic improvement of identified indigenous descript breeds of sheep and goat through selective breeding for better yielding breed stock for meat, milk and wool.
2. Genetic improvement of non-descript breeds of sheep by germplasm from existing improved descript indigenous breeds.

The twin goals of formulating the Breeding Plan for Genetic Improvement in Sheep & Goat would be to increase the income of the sheep/ goat rearing farmer / entrepreneur so as to achieve the Honourable Prime Minister’s plan for doubling the farmer’s income and the at the same time meet the nutritional needs of the country especially the requirement of protein.

Accordingly, a meeting of an Expert Committee for developing a Breeding Plan for Genetic Improvement of Sheep and Goats was held on 22nd August, 2016 under Chairmanship of Animal Husbandry Commissioner, GoI in Committee Room No 243 Krishi Bhavan, New Delhi. And on the basis of the recommendations of the Expert Committee, it is proposed to implement a project namely, “Innovative Project for Genetic Improvement of Goat and Sheep” (GISG).

Also, a Stakeholder’s meeting in presence of the representatives from expert institutes was convened on 31st January’ 2017 at Krishi Bhawan, New Delhi under the chairmanship of Joint Secretary(ANLM), with following agenda:

- The feasibility and prospects of the project in terms of implementation at ground level and other details related with the project thereof.
- The States' approval on implementing this project in its entirety, keeping in mind the time frame of the project, the 40% share (90% for eligible State) that the State has to share.

The Sheep and Goat breeds would be selected on the basis of their Productivity Index and in identified states having the concerned descript high genetic merit population of goat / sheep. After identification of the States, districts within the States would be further selected on the basis of the density of the selected breeds. The genetic upgradation of the selected Sheep and Goat breed is envisaged to be done through natural service, while the upgradation of nondescript populations are envisaged to be done by Artificial Insemination in case of Sheep.

Presently the following breeds are proposed to be selected for breeding as per above 3 point strategy:
### CHART-XI: Breeds proposed /selected for breeding

<table>
<thead>
<tr>
<th>Species</th>
<th>HGM INDIGENOUS BREED</th>
<th>HGM EXOTIC BREED</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Meat</td>
<td>Milk</td>
</tr>
<tr>
<td>Goat</td>
<td>Sirohi, Jhakrana, Beetal, Jamnapari and Kutchi</td>
<td>Mehsana, Surti, Jhakrana, and Beetal</td>
</tr>
<tr>
<td></td>
<td>Meat</td>
<td>Wool</td>
</tr>
<tr>
<td>Sheep</td>
<td>Deccani, Mecheri, Chokla, Mandya and Gaddi</td>
<td>No Fine Wool Breed.</td>
</tr>
</tbody>
</table>

#### 3.2.1 Action plan for Sheep genetic improvement

The action plan for sheep breed improvement would firstly involve identification of the herd population of high genetic merit. The broad steps and the process to do this would comprise:

i. Identification of the best female animals with good phenotype from the concerned tract areas / villages / districts etc. by organizing an exhibition with prize money for Ewes. The number of ewes identified should be at least 3 times more than the number of rams required to cover the entire breedable female population of the selected districts (zone). The name and address of the owner of the ewes shall be taken and recorded to facilitate the skilled recorder to record the traits of the male lambs thus given birth by such ewes.

ii. Simultaneously, the required number of rams with good vigor and phenotype will be identified and purchased by Government for breeding with the identified ewes. The number of such rams shall be at a ratio of 1 ram per 33 identified ewes.

iii. Male lambs born out of the identified ewes and having satisfactory growth rate and preferably out of twinning lambs will be identified; records will be collected till 9 months of age at the farmer's house itself. Recorded data shall be sent to Central Sheep and Wool Research Institute (CSWRI), Avikanagar, to get the approval to purchase the Rams for breeding. Recording of traits will be done by persons from concerned State department only.

iv. Rs. 5,000/- will be given to each owner of the identified male lambs for taking good care of the animals, with an agreement that they cannot sell off such animals for the whole nine months period.

v. Following recommendations from the CSWRI, Avikanagar, the selected high genetic merit rams will be purchased @ Rs.30,000/- and distributed to progressive farmers in the ratio of Ram: Ewe=1:33. An agreement that they cannot sell off the Rams till 5 year and they have to allow to breed the nearby females of the villager by taking Rs. 50/- per service for looking after the Ram shall be made. Any additional amount over the above purchase price for the Ram shall have to be borne by the States, if required.

vi. The ewes of Non descript Sheep will be covered by artificial insemination (AI) to be introduced on pilot basis. Costs of Machinery and equipment only for setting up frozen semen lab shall be given to any identified State Government farm/Institute Farm, etc as
proposed by the concerned State. Side by side, Embryo Transfer (ET) technique, In Vitro Fertilization (IVF) of animals to also be introduced and propagated on pilot basis in these farms.

vii. All the identified as well as selected animals will be insured and ear tagged.

3.2.1.1 The flow chart for the above activities is as follows:

```
Identification of best animal (Ram+ Ewe)

Distribution of Rams for breeding with the identified Ewes

Identification and selection of male lambs born out of the identified ewes

Purchase of high genetic merit Rams to distribute for natural service and keeping in Semen labs

Setting up of Semen Lab. (pilot basis)

Processing of frozen semen from the selected Rams (pilot basis)

Estrous synchronization and Artificial insemination of animals (pilot basis)

Embryo transfer and In vitro Fertilization (pilot basis)
```

3.2.2 Action plan for Goat genetic improvement

i. An exhibition with prize money for does with good phenotype will be conducted. The number of does identified should be at least 3 times more than the number of bucks required to cover the earmarked breedable female population of the selected districts (zone). The name and address of the owner of the does shall be taken and recorded to facilitate the skilled recorder to record the traits of the male kids thus given birth by such does.

ii. Simultaneously, the required number of bucks with good vigor and phenotype will be identified and purchased by Government for breeding with the identified does. The number of such bucks shall be at a ratio of 1 buck per 30 identified does.

iii. Male kids born out of the identified does and having satisfactory growth rate and preferably out of twinning kids will be identified; records will be collected till 9 months of age at the farmer’s house itself. Recorded data shall be sent to Central Institute for Research on Goats (CIRG), Makhdum, to get the approval to purchase the bucks for breeding. Recording of traits will be done by entrusted persons @ Rs.5000/-per month.
iv. Following recommendations from the CIRG, Makhdum, the selected high genetic merit bucks will be purchased @ Rs.30,000/- and distributed to progressive farmers in the ratio of Buck: Doe=1:30. An agreement that they cannot sell off the bucks till 5 year and they have to allow to breed the nearby females of the villager by taking Rs. 50/- per service for looking after the buck shall be made. Any additional amount over the above purchase price for the buck shall have to be borne by the States, if required.

v. All the identified as well as selected animals will be insured and ear tagged.

3.2.2.1 The flow chart for the above activities is as follows:

Identification of best Does+ Buck

Distribution of Bucks for breeding with the identified Does

Identification and selection of male kids born out of the Identified Does

Purchase of high genetic merit Bucks to distribute for natural service

Distribution of HGM bucks to the farmers

3.3 Funding requirements

3.3.1 Sheep Genetic Improvement

<table>
<thead>
<tr>
<th>Sl.No.</th>
<th>Component</th>
<th>Physical number</th>
<th>Fund requirement (Rs. in lakhs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Identification &amp; Purchase of phenotypically Good looking Rams for breeding with prized ewes</td>
<td>692</td>
<td>207.60</td>
</tr>
<tr>
<td>2</td>
<td>Prize money for Ewes</td>
<td>22785</td>
<td>683.00</td>
</tr>
<tr>
<td>3</td>
<td>Rearing Cost for male lambs</td>
<td>7594</td>
<td>379.00</td>
</tr>
<tr>
<td>4</td>
<td>Buy back of Rams</td>
<td>7594</td>
<td>2279.00</td>
</tr>
<tr>
<td>5</td>
<td>Cost of Rams for Lab.</td>
<td>100</td>
<td>30.00</td>
</tr>
<tr>
<td>6</td>
<td>Cost for Frozen semen lab., LN2 tanker, Animal shed, Isolation &amp; Quarantine shed, Machinery &amp; Equipments, Biosecured fencing, semen carrier Van, Oestrous syn. Kit, ET/ IVF accessories &amp; any other necessary.</td>
<td>5 States</td>
<td>5000.00</td>
</tr>
<tr>
<td>7</td>
<td>Monitoring &amp; Evaluation</td>
<td>5 States for 5 year</td>
<td>250.00</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td></td>
<td><strong>8828.60</strong></td>
</tr>
</tbody>
</table>

GRAND TOTAL: 88.29 Crore
3.3.2 Goat Genetic Improvement

<table>
<thead>
<tr>
<th>Sl.No.</th>
<th>Component</th>
<th>Physical number for meat purpose</th>
<th>Fund requirement for meat purpose (Rs. in lakhs)</th>
<th>Physical number for milk purpose</th>
<th>Fund requirement for milk purpose (Rs. in lakhs)</th>
</tr>
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<tbody>
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<td>1.</td>
<td>Prize money for Does</td>
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<td>1543.14</td>
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<td>2.</td>
<td>Initial purchase of Bucks to breed with Prized Does</td>
<td>1716</td>
<td>514.80</td>
<td>782</td>
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<td>3.</td>
<td>Rearing Cost for male Kids</td>
<td>17151</td>
<td>857.55</td>
<td>7818</td>
<td>391.00</td>
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<td>4.</td>
<td>Buy back of Bucks</td>
<td>17151</td>
<td>5146.00</td>
<td>7818</td>
<td>2345.00</td>
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<tr>
<td>5.</td>
<td>Cost for Skill Recorder</td>
<td>1029</td>
<td>617.38</td>
<td>469</td>
<td>281.00</td>
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<td>6.</td>
<td>Monitoring &amp; Evaluation</td>
<td>5 States for 5 year</td>
<td>250.00</td>
<td>5 States for 5 year</td>
<td>100.00</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td>8928.87</td>
<td></td>
<td></td>
<td>4055.22</td>
</tr>
</tbody>
</table>

GRAND TOTAL: 129.84 Crore

3.3.3 The Project would be implemented to run for a period of five years with funding requirement of Rs.218.13 crores, out of which an amount of Rs.129.84 crores is for Goat and Rs.88.29 crores for Sheep Breed Improvement.

3.3.4 The funding pattern for GISG is 60:40 Central(90:10 for Himachal Pradesh) – State share, hence the required GOI share would be Rs.135 Crores, out of which Rs.77.91 crore is for Goat and Rs.57.09 crore is for Sheep. This funding would be met from the overall allocation to NLM for FY 17-18 and for subsequent years.

3.3.5 The project is envisaged to run for 5 years to achieve its goal. Though the commencement is slated to be on FY 2017-18, should all proposals from the concerned States be not received on FY 2017-18, period for acceptance of proposals may be extended only upto FY 2018-19.

3.3.6 Required National Steering Committee and Technical Monitoring Committee at the Central and State levels respectively, would be set up for projection sanctioned, monitoring and evaluation once GISG is approved.

3.3.7 Year wise expenditure of the total GoI share amount of Rs. 135 Crores is envisaged to be phased out in the following manner.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Goat</td>
<td>77.91</td>
<td>35.00</td>
<td>35.00</td>
<td>7.41</td>
<td>0.25</td>
<td>0.25</td>
</tr>
<tr>
<td>Sheep</td>
<td>57.09</td>
<td>25.00</td>
<td>25.00</td>
<td>6.59</td>
<td>0.25</td>
<td>0.25</td>
</tr>
<tr>
<td>TOTAL</td>
<td>135.00</td>
<td>60.00</td>
<td>60.00</td>
<td>14.00</td>
<td>0.50</td>
<td>0.50</td>
</tr>
</tbody>
</table>
4. EXPECTED OUTCOMES

4.1 Expected Outcomes: Sheep

i) The expected number of High Genetic Merit lambs to be born through one mating upto F2 level only is 2.46 lakh out of natural service, and 3.60 lakh out of artificial insemination (A.I.) through frozen semen. This is after considering mortality and other losses at 10% and 50% success in A.I.

ii) An estimated total of 1.59 lakh farmers will be benefitted upto F2 level.

4.2 Expected Outcomes: Goat

i) An anticipated total of 6.74 lakh of High Genetic Merit kids will born at F2 generation level through one mating of the selected/ identified animals.

ii) An estimated total of 2.33 lakh farmers will be benefitted upto F2 level.

5. CONCLUSION

With the ever increasing population and the changing trends in food habits in our country, it is inevitable that there shall be an increasing demand for more animal proteins/ meat to be made available. This scenario also holds good in the demand for both milk and wool. Thus, to increase the meat, milk and wool production, breed improvement even while increasing the farmers’ income as part of the achievement of the vision of the Hon PM for doubling farmers’ income breed improvement is the key to attain the desired goal. This would be achieved by upgrading of indigenous breeds within themselves and upgrading through exotic germplasm in case of non descript small ruminants. Accordingly, it is envisaged that with the implementation of the Innovative Project for “Genetic Improvement of Goat and Sheep” (GISG), there will be the triple advantage of higher population of high genetic merit animals coupled with increased farmer income per animal and at the same time addressing the meat, milk and wool demand of the country.

*****
# MEAT BREED IMPROVEMENT PROGRAMME FOR GOAT-SIROHI

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Breed selected for improvement</th>
<th>Areas (States)</th>
<th>Zones (Districts) considered</th>
<th>Total female Goat of respective breed</th>
<th>Total No. of superior looking Does to be identified &amp; monitored</th>
<th>Total prize money for identified Does in exhibition (Districtwise) @ Rs. 3000/- per Doe</th>
<th>Number of persons required for daily recording growth, milk yield, health etc. @ 50 Doe per person</th>
<th>Total cost for the persons entrusted for record collection @ Rs. 5000/- per month. For 1 year.</th>
<th>Male Kids having satisfactory growth rate and preferably out of twinning will be tentatively selected from identified does</th>
<th>Total cost for rearing the selected 1000 male kids with progressive farmers till the age of final selection i.e. 9 months (feed + vaccine + utensil + mineral mixture) @ Rs. 5000/- per male kid</th>
<th>Total cost for rearing the selected 1000 male kids with progressive farmers till the age of final selection i.e. 9 months (feed + vaccine + utensil + mineral mixture) @ Rs. 5000/- per male kid</th>
<th>Total cost (Col 7+ Col 9+ Col 11+ Col 12)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Sirohi</td>
<td>Rajasthan</td>
<td>Ajmer</td>
<td>190364</td>
<td>3000</td>
<td>90 60 36 1000 50 300</td>
<td>132732 3000 90 60 36 1000 50 300</td>
<td>200 1200 1904</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Jaipur</td>
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<td></td>
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<td>3000</td>
<td>90 60 36 1000 50 300</td>
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</tr>
<tr>
<td>3</td>
<td>Nagaur</td>
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<td></td>
<td>160533</td>
<td>3000</td>
<td>90 60 36 1000 50 300</td>
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<td>200 1200 1904</td>
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</tr>
<tr>
<td>4</td>
<td>Sirohi</td>
<td></td>
<td></td>
<td>132732</td>
<td>3000</td>
<td>90 60 36 1000 50 300</td>
<td>132732 3000 90 60 36 1000 50 300</td>
<td>200 1200 1904</td>
<td></td>
<td></td>
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<tr>
<td><strong>Total</strong></td>
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<td></td>
<td><strong>652393</strong></td>
<td><strong>12000</strong></td>
<td><strong>360 240 144 4000 200 1200</strong></td>
<td><strong>132732 3000 90 60 36 1000 50 300</strong></td>
<td><strong>200 1200 1904</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Identified Buck to be purchased in exhibition = 400 No. @ Rs 30000/ Buck= Rs 120 Lakh

**Grand Total = Rs.1904 lakh + Rs.120 lakh + Rs.50 lakh for monitoring & evaluation : 2074**
### MEAT BREED IMPROVEMENT PROGRAMME FOR GOAT-JHAKRANA

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Breed selected for improvement</th>
<th>Areas (States)</th>
<th>Zones (Districts) considered.</th>
<th>Total female Goat of respective breed</th>
<th>Total No. of superior looking Does to be identified &amp; monitored</th>
<th>Total prize money for identified Does in exhibition (Districtwise) @ Rs. 3000/- per Doe</th>
<th>Number of persons required for daily recording growth, milk yield, health etc. @ 50 Doe per person</th>
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<th>Male Kids having satisfactory growth rate and preferably out of twinning will be tentatively selected from identified does</th>
<th>Total cost for rearing the selected 1000 male kids with progressive farmers till the age of final selection i.e. 9 months (feed + vaccine + utensil + mineral mixture) @ Rs. 5000/- per male kid</th>
<th>Total cost of recommended 9 month old buck @ Rs. 30000/- per buck to be distributed to farmers at the ratio of 1:30</th>
<th>Total cost (Col 7+ Col 9+ Col 11+ Col12)</th>
</tr>
</thead>
<tbody>
<tr>
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<td>Rajasthan</td>
<td>Ganganagar</td>
<td>39299</td>
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<td>90</td>
<td>60</td>
<td>36</td>
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<td>50</td>
<td>300</td>
<td>476</td>
</tr>
<tr>
<td></td>
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<td>Jaipur</td>
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<td>3000</td>
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<td>Churu</td>
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<td>3000</td>
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<td>50</td>
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<td>476</td>
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<tr>
<td><strong>Total</strong></td>
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<td></td>
<td></td>
<td>515371</td>
<td>12000</td>
<td>360</td>
<td>240</td>
<td>144</td>
<td>4000</td>
<td>200</td>
<td>1200</td>
<td><strong>1904</strong></td>
</tr>
</tbody>
</table>

Identified Buck to be purchased in exhibition = 400 No. @ Rs 30000/ Buck= Rs 120 Lakh

Grand Total = Rs.1904 lakh + Rs.120 lakh + Rs.50 lakh for monitoring & evaluation : 2074
## MEAT BREED IMPROVEMENT PROGRAMME FOR GOAT-BEETAL

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Breed selected for improvement</th>
<th>Areas (States)</th>
<th>Zones (Districts) considered.</th>
<th>Total female Goat of respective breed</th>
<th>Total No. of superior looking Does to be identified &amp; monitored</th>
<th>Total prize money for identified Does in exhibition (Districtwise) @ Rs. 3000/- per Doe</th>
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<th>Total cost of recommended 9 month old buck @ Rs. 30000/- per buck to be distributed to farmers at the ratio of 1:30</th>
<th>Total cost (Col 7+ Col 9+ Col 11+ Col12)</th>
</tr>
</thead>
<tbody>
<tr>
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<td>13853</td>
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</table>

Identified Buck to be purchased in exhibition = 145 No. @ Rs 30000/ Buck= Rs 43.5 Lakh

Grand Total = Rs.688 lakh + Rs.43.5 lakh + Rs.50 lakh for monitoring & evaluation : 781.5
# MEAT BREED IMPROVEMENT PROGRAMME FOR GOAT-JAMNAPARI

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Breed selected for improvement</th>
<th>Areas (States)</th>
<th>Zones (Districts) considered.</th>
<th>Total female Goat of respective breed</th>
<th>Total No. of superior looking Does to be identified &amp; monitored</th>
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<th>Number of persons required for daily recording growth, milk yield, health etc. @ 50 Doe per person</th>
<th>Total cost for the persons entrusted for record collection.@ Rs.5000/- per month. For 1 year.</th>
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<th>Total cost for rearing the selected 1000 male kids with progressive farmers till the age of final selection i.e. 9 months (feed + vaccine + utensil + mineral mixture) @ Rs. 5000/- per male kid</th>
<th>Total cost of recommended 9 month old buck @ Rs. 30000/- per buck to be distributed to farmers at the ratio of 1:30</th>
<th>Total cost (Col 7+ Col 9+ Col11+ Col12)</th>
<th>Total cost ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
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<td>Uttar Pradesh</td>
<td>Allahabad</td>
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<td>3705</td>
<td>185.25</td>
<td>1112</td>
<td>1764</td>
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</tbody>
</table>

Identified Buck to be purchased in exhibition = 371 No. @ Rs 30000/ Buck = Rs 111.3 Lakh

Grand Total = Rs.1764 lakh + Rs.111.3 lakh + Rs.50 lakh for monitoring & evaluation : 1925.3
<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Breed selected for improvement</th>
<th>Areas (States)</th>
<th>Zones (Districts) considered.</th>
<th>Total female Goat of respective breed</th>
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<th>Total cost for rearing the selected 1000 male kids with progressive farmers till the age of final selection i.e. 9 months (feed + vaccine + utensil + mineral mixture) @ Rs. 5000/- per male kid</th>
<th>Total cost for identified Buck to be purchased in exhibition = 400 No. @ Rs 30000/ Buck= Rs 120 Lakh</th>
<th>Total cost (Col 7 + Col 9 + Col 11 + Col12)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
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<td>Gujarat</td>
<td>Kutchch</td>
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<td>12000</td>
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<td>240</td>
<td>144</td>
<td>4000</td>
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<td>1200</td>
<td>1904</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td></td>
<td><strong>280714</strong></td>
<td><strong>12000</strong></td>
<td><strong>360</strong></td>
<td><strong>240</strong></td>
<td><strong>144</strong></td>
<td><strong>4000</strong></td>
<td><strong>200</strong></td>
<td><strong>1200</strong></td>
<td><strong>1904</strong></td>
</tr>
</tbody>
</table>

Identified Buck to be purchased in exhibition = 400 No. @ Rs 30000/ Buck = Rs 120 Lakh

Grand Total = Rs.1904 lakh + Rs.120 lakh + Rs.50 lakh for monitoring & evaluation : 2074
### MILK BREED IMPROVEMENT PROGRAMME FOR GOAT-MEHSANA

| Sl. No. | Breed selected for improvement | Areas (States) | Zones (Districts) considered. | Total female Goat of respective breed | Total No. of superior looking Does to be identified & monitored | Total prize money for identified Does in exhibition (Districtwise) @ Rs. 3000/- per Doe | Number of persons required for daily recording growth, milk yield, health etc. @ 50 Doe per person | Total cost for the persons entrusted for record collection. @ Rs.5000/- per month. For 1 year. | Male Kids having satisfactory growth rate and preferably out of twinning will be tentatively selected from identified does | Total cost for rearing the selected 1000 male kids with progressive farmers till the age of final selection i.e. 9 months (feed + vaccine + utensils + mineral mixture) @ Rs. 5000/- per male kid | Total prize money for identified Does in exhibition (Districtwise) @ Rs. 3000/- per Doe | Total cost of recommended 9 month old buck @ Rs. 30000/- per buck to be distributed to farmers at the ratio of 1:30 | Total cost (Col 7+ Col 9+ Col 11+ Col 12) |
|---------|---------------------------------|----------------|-------------------------------|--------------------------------------|---------------------------------------------------------------|--------------------------------------------------------------------------------|---------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| 1       | Mehsana                         | Gujarat        | Banas Kantha                  | 155306                               | 3000                            | 90                                                           | 60                                                                                                           | 36                                                                                                                                  | 1000                                                                                                                                  | 50                                                                                                                                  | 300                                                                                                                                  | 476                                                                                                                                  | 2074                                                                                                                                  |
|         |                                  |                | Mahesana                      | 66626                                | 3000                            | 90                                                           | 60                                                                                                           | 36                                                                                                                                  | 1000                                                                                                                                  | 50                                                                                                                                  | 300                                                                                                                                  | 476                                                                                                                                  |
|         |                                  |                | Ahmedabad                     | 39510                                | 3000                            | 90                                                           | 60                                                                                                           | 36                                                                                                                                  | 1000                                                                                                                                  | 50                                                                                                                                  | 300                                                                                                                                  | 476                                                                                                                                  |
|         |                                  |                | Sabar Kantha                  | 39926                                | 3000                            | 90                                                           | 60                                                                                                           | 36                                                                                                                                  | 1000                                                                                                                                  | 50                                                                                                                                  | 300                                                                                                                                  | 476                                                                                                                                  |
| Total   |                                 |                |                               | 301368                               | 12000                           | 360                                                         | 240                                                                                                          | 144                                                                                                                                  | 4000                                                                                                                                  | 200                                                                                                                                  | 1200                                                                                                                                  | 1904                                                                                                                                  |

Identified Buck to be purchased in exhibition = 400 No. @ Rs 30000/- Buck= Rs 120 Lakh

Grand Total = Rs.1904 lakh + Rs.120 lakh + Rs.50 lakh for monitoring & evaluation : 2074
### Milk Breed Improvement Programme for Goat - Surti

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Breed selected for improvement</th>
<th>Areas (States)</th>
<th>Zones (Districts) considered</th>
<th>Total female Goat of respective breed</th>
<th>Total No. of superior looking Does to be identified &amp; monitored</th>
<th>Total prize money for identified Does in exhibition (Districtwise) @ Rs. 3000/- per Doe</th>
<th>Number of persons required for daily recording growth, milk yield, health etc. @ 50 Doe per person</th>
<th>Total cost for the persons entrusted for record collection.@ Rs.5000/- per month. For 1 year.</th>
<th>Male Kids having satisfactory growth rate and preferably out of twinning will be tentatively selected from identified does</th>
<th>Total cost for rearing the selected 1000 male kids with progressive farmers till the age of final selection i.e. 9 months (feed + vaccine + utensil + mineral mixture) @ Rs. 5000/- per male kid</th>
<th>Total cost for recommended 9 month old buck @ Rs. 30000/- per buck to be distributed to farmers at the ratio of 1:30</th>
<th>Total cost (Col 7+ Col 9+ Col 11+ Col 12)</th>
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</thead>
<tbody>
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<td>22</td>
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<td>185</td>
<td>293</td>
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<td>125982</td>
<td>11454</td>
<td>343.62</td>
<td>229</td>
<td>137</td>
<td>3818</td>
<td>191</td>
<td>1145</td>
<td>1817</td>
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</tbody>
</table>

Identified Buck to be purchased in exhibition = 382 No. @ Rs 30000/ Buck = Rs 114.6 Lakh

Grand Total = Rs.1817 lakh + Rs.114.6 lakh + Rs.50 lakh for monitoring & evaluation : 1931.6
### MEAT BREED IMPROVEMENT PROGRAMME FOR SHEEP-DECCANI (NATURAL SERVICE)

| Sl. No. | Breed selected for improvement | Areas (States) | Total No. of female Sheep of respective breed | Total No. of superior looking Ewes to be identified & monitored | Total prize money for identified Ewes in exhibition (District wise) @ Rs. 3000/- per Ewe (Rs. in lakh) | Initial No. of superior looking Rams to be identified in exhibition to be used for breeding identified Ewes | Total cost for purchase of identified Rams in exhibition (District wise) @ Rs. 30000/- per Ram (Rs. in lakh) | Number of persons required for breeding and health etc. @ 50 Ewe per person | Male Lambs having satisfactory growth rate and preferably out of twinning will be tentatively selected from identified ewes | Total cost for rearing the selected male lambs with progressive farmers till the age of 9 months (feed + vaccine + utensil + mineral mixture) @ Rs. 5000/- per male lamb (Rs. in lakh) | Total cost of recommend 9 month old ram @ Rs. 30000/- per ram to be distributed to farmers at the ratio of 1:33 (Rs. in lakh) | Total cost (Col 8+ Col10+ Col13+ Col14) (Rs. in lakh) |
|---------|-------------------------------|----------------|---------------------------------------------|-------------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------------------|---------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------------------|
| 1       | Deccani                       | Telengana       | 532632                                      | 1614                                           | 4842                                            | 145                                                           | 147                                                           | 44                                                           | 97                                                               | 1614                                                          | 81                                                               | 484                                                             | 754                                                             |
|         | Karimnagar                    | 316031          | 958                                          | 2873                                           | 86                                              | 87                                                            | 26                                                            | 57                                                           | 958                                                              | 48                                                             | 287                                                             | 447                                                             |
|         | Medak                         | 244795          | 742                                          | 2225                                           | 67                                              | 67                                                            | 20                                                            | 45                                                           | 742                                                              | 37                                                             | 223                                                             | 347                                                             |
|         | Nizamabad                     | 176793          | 536                                          | 1607                                           | 48                                              | 49                                                            | 15                                                            | 32                                                           | 536                                                              | 27                                                             | 161                                                             | 250                                                             |
| **Total** |                               |                | 1270251                                     | 3849                                           | 11548                                           | 346                                                           | 350                                                           | 105                                                          | 231                                                               | 3849                                                          | 192                                                             | 1155                                                            | 1799                                                            |

### MEAT BREED IMPROVEMENT PROGRAMME FOR SHEEP-DECCANI (ARTIFICIAL INSEMINATION)

| Population selected for improvement | Areas (States) | No. of Institute/State Farm, etc to be selected for responsibility of A.I., etc, by State. | No. of Female expected to cover by AI (5 Yr) | Total ram required for AI lab. | Cost of Rams @ Rs 30000/- per ram for A.I. lab (Rs. in Lakhs) | Cost for Liquid semen lab. or Frozen semen lab., LN2 tanker, Animal shed, Isolation & Quarantine shed., Machinery & Equipments, Biosecured fencing, semen carrier Van, Oestrus syn. Kit, ET/ IVF accessories, etc. (Rs. in lakhs) |
|------------------------------------|----------------|------------------------------------------------------------------------------------------|---------------------------------------------|-----------------------------|-----------------------------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------------------|
| Non-descript                       | Telengana      | 1                                                                                        | 720000                                      | 20                          | 6                                                               | 1000                                                             | 1006                                                             |

**Monitoring and Evaluation = 50**

**TOTAL COST FOR TELENGANA = 2855**
### MEAT BREED IMPROVEMENT PROGRAMME FOR SHEEP-MECHERI (NATURAL SERVICE)

| Sl. No. | Breed selected for improvement | Areas (States) | Zones (Districts) considered. | Total female Sheep of respective breed | Total HGM Ram required to be selected | Total No. of superior looking Ewes to be identified & monitored | Total prize money for identified Ewes in exhibition (District wise) @ Rs. 3000/- per Ewe (Rs. in lakh) | Initial No. of superior looking Rams to be identified in exhibition to be used for breeding identified Ewes | Total No. of persons required for daily recording, growth, milk yield, health etc. @ 50 Ewe per person | Number of persons required for rearing the selected male lambs with progressive farmers till the age of final selection i.e. 9 months (feed + vaccine + utensil + mineral mixture)@ Rs. 5000/- per male lamb (Rs. in lakh) | Total cost for rearing the selected male lambs with progressive farmers till the age of final selection i.e. 9 months (feed + vaccine + utensil + mineral mixture)@ Rs. 5000/- per male lamb (Rs. in lakh) | Total cost of recommended 9 month old ram @ Rs. 30000/- per ram to be distributed to farmers at the ratio of 1:33 (Rs. in lakh) | Total cost for purchase of identified Rams in exhibition (District wise) @ Rs. 3000/- per Ram (Rs. in lakh) | Total prize money for identified Ewes in exhibition (District wise) @ Rs. 3000/- per Ewe (Rs. in lakh) | Total cost for purchase of identified Rams in exhibition (District wise) @ Rs. 3000/- per Ram (Rs. in lakh) | Total cost for purchase of identified Rams in exhibition (District wise) @ Rs. 3000/- per Ram (Rs. in lakh) |
|---------|--------------------------------|----------------|-------------------------------|----------------------------------------|--------------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|
| 1       | Mecheri                        | Tamil Nadu     | Tiruppur                      | 297451                                 | 901                                  | 2704                                            | 81                                              | 82                                              | 25                                              | 54                                              | 901                                              | 45                                              | 270                                              | 421                                              | 597                                              | 1006                                             | 50                                              | 2016                                             |
|         |                                 |                | Salem                         | 183984                                 | 558                                  | 1673                                            | 50                                              | 51                                              | 15                                              | 33                                              | 558                                              | 28                                              | 167                                              | 261                                              | 358                                              | 616                                              | 960                                              |
|         |                                 |                | Karur                         | 137752                                 | 417                                  | 1252                                            | 38                                              | 38                                              | 11                                              | 25                                              | 417                                              | 21                                              | 125                                              | 195                                              | 126                                              | 261                                              | 95                                              |
|         |                                 |                | Dharmapuri                    | 58693                                  | 178                                  | 534                                             | 16                                              | 16                                              | 5                                               | 11                                              | 178                                              | 9                                               | 53                                               | 83                                               | 77                                               | 166                                              | 30                                              |
| Total   |                                 |                |                               | 677880                                 | 2054                                  | 6163                                            | 185                                             | 187                                             | 56                                              | 123                                             | 2054                                             | 103                                             | 616                                              | 960                                              | 1006                                             | 50                                              | 2016                                             |

### MEAT BREED IMPROVEMENT PROGRAMME FOR SHEEP-MECHERI (ARTIFICIAL INSEMINATION)

| Population selected for improvement | Areas (States) | No. of Institute/State Farm to be selected for responsibility of A.I., etc. by State | No. of Female expected to cover by Al (5 Yr) | Total ram required for Al lab. | Cost of Rams @ Rs 30000/- per ram for A.I. lab (Rs. in lakhs) | Cost for Liquid semen lab. or Frozen semen lab., LN2 tanker, Animal shed, Isolation & Quarantine shed., Machinery & Equipments, Biosecured fencing, semen carrier Van, Oestrous syn. Kit, ET/ IVF accessories, etc. (Rs. in lakhs) | Monitoring and Evaluation | Total cost for Tamil Nadu |
|-------------------------------------|----------------|---------------------------------------------------------------------------------|---------------------------------------------|-------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|
| Non descript                        | Tamil Nadu     | 1                                                                               | 720000                                     | 20                            | 6                                               | 1000                                              | 1006                                             | 50                                             | 2016                                             |

TOTAL COST FOR TAMIL NADU = 2016
## MEAT BREED IMPROVEMENT PROGRAMME FOR SHEEP-CHOKLA (NATURAL SERVICE)

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Breed selected for improvement</th>
<th>Areas (States)</th>
<th>Population selected for improvement</th>
<th>No. of Institute/Sta te Farm, etc to be selected for responsibility of A.I., etc. by State.</th>
<th>No. of Female expected to cover by Al (5 Yr)</th>
<th>Total ram required for Al lab.</th>
<th>Cost of Rams @ Rs 30000/- per ram for A.I. lab</th>
<th>Cost for Liquid semen lab. or Frozen semen lab., LN2 tanker, Animal shed, Isolation &amp; Quarantine shed., Machinery &amp; Equipments, Biosecured fencing, semen carrier Van, Oestrous syn. Kit, ET/IVF accessories, etc. (Rs. in lakhs)</th>
<th>Monitoring and Evaluation = 50</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Chokla</td>
<td>Rajasthan</td>
<td>Non descript</td>
<td>Rajastha n</td>
<td>1</td>
<td>720000</td>
<td>20</td>
<td>6</td>
<td>1000</td>
</tr>
</tbody>
</table>

**Cost for Liquid semen lab. or Frozen semen lab., LN2 tanker, Animal shed, Isolation & Quarantine shed., Machinery & Equipments, Biosecured fencing, semen carrier Van, Oestrous syn. Kit, ET/IVF accessories, etc. (Rs. in lakhs)**

**Total Cost for Rajasthan = 1311**
### MEAT BREED IMPROVEMENT PROGRAMME FOR SHEEP-MANDYA (NATURAL SERVICE)

| Sl. No. | Breed selected for improvement | Areas (States) | Zones (Districts) considered. | Total female Sheep of respective breed | Total No. of superior looking Ewes to be identified & monitored | HGM Ram required to be selected | Initial No. of superior looking Rams to be identified in exhibition (Districtwise) @ Rs. 3000/- per Ewe (Rs. in lakh) | Total prize money for purchase of identified Rams in exhibition (Districtwise) @ Rs. 3000/- per Ram (Rs. in lakh) | Total No. of superior looking Ewes in exhibition to be used for breeding identified Ewes | Total prize money for identified Ewes in exhibition (Districtwise) @ Rs. 3000/- per Ewe (Rs. in lakh) | Number of persons required for daily recording, milk yield, health etc. @ 50 Ewe per person | Male Lambs having satisfactory growth rate and preferably out of twinning will be tentatively selected from identified ewes | Total cost for rearing the selected male lambs with progressive farmers till the age of final selection i.e. 9 months (feed + vaccine + uterusil + mineral mixture)@ Rs. 5000/- per male lamb (Rs. in lakh) | Total prize money for identified Ewes in exhibition (Districtwise) @ Rs. 3000/- per Ewe (Rs. in lakh) | Total cost for purchase of identified Rams in exhibition (Districtwise) @ Rs. 3000/- per Ram (Rs. in lakh) | Monitoring and Evaluation |
|---------|-------------------------------|----------------|-----------------------------|----------------------------------------|-------------------------------------------------------------|---------------------------------|---------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|
| 1       | Mandya                        | Karnataka      | Mandya                      | 72052                                  | 218                                                                 | 655                                                                 | 20                                                                                                                             | 6                                                                                                                             | 20                                                                                                                             | 6                                                                                                                             | 13                                                                                                                             | 218                                                                                                                             | 11                                                                                                                             | 66                                                                                                                             | 102                                                                                                                             | 23                                                                                                                             | 50                                                                                                                             | 1274                                                                                                                             |
| 2       | Mysore                        | Karnataka      | Mysore                      | 49674                                  | 151                                                                 | 452                                                                 | 14                                                                                                                             | 14                                                                                                                             | 4                                                                                                                             | 9                                                                                                                             | 151                                                                                                                             | 8                                                                                                                             | 45                                                                                                                             | 70                                                                                                                             | 45                                                                                                                             | 29                                                                                                                             | 45                                                                                                                             | 140                                                                                                                             |
| 3       | Ramanagara                    | Karnataka      | Ramanagara                  | 31904                                  | 97                                                                 | 290                                                                 | 9                                                                                                                             | 9                                                                                                                             | 3                                                                                                                             | 6                                                                                                                             | 97                                                                                                                             | 5                                                                                                                             | 29                                                                                                                             | 45                                                                                                                             | 29                                                                                                                             | 45                                                                                                                             | 140                                                                                                                             |
| Total   |                               |                |                             | 153630                                 | 466                                                                 | 1397                                                                | 42                                                                                                                             | 42                                                                                                                             | 13                                                                                                                             | 28                                                                                                                             | 466                                                                                                                             | 23                                                                                                                             | 140                                                                                                                             | 218                                                                                                                             | 23                                                                                                                             | 50                                                                                                                             | 1274                                                                                                                             |

### MEAT BREED IMPROVEMENT PROGRAMME FOR SHEEP-MANDYA (ARTIFICIAL INSEMINATION)

<table>
<thead>
<tr>
<th>Population selected for improvement</th>
<th>Areas (States)</th>
<th>No. of Institute/State Farm, etc to be selected for responsibility of A.I., etc. by State.</th>
<th>No. of Female expected to cover by A.I. (5 Yr)</th>
<th>Total ram required for A.I. lab. (Rs. in lakhs)</th>
<th>Cost of Rams @ Rs 30000/- per ram for A.I. lab. (Rs. in lakhs)</th>
<th>Cost for Liquid semen lab. or Frozen semen lab., LN2 tanker, Animal shed, Isolation &amp; Quarantine shed., Machinery &amp; Equipments, Biosecured fencing, semen carrier Van, Oestrous syn. Kit, ET/ IVF accessories, etc. (Rs. in lakhs)</th>
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</tbody>
</table>
### MEAT BREED IMPROVEMENT PROGRAMME FOR SHEEP-GADDI (NATURAL SERVICE)

| Sl. No. | Breed selected for improvement | Areas (States) | Zones (Districts) considered | Total female Sheep of respective breed | Total No. of HGM Ram required to be selected | Total prize money for identified Ewes in exhibition (Districtwise) @ Rs. 3000/- per Ewe (Rs. in lakh) | Initial No. of superior looking Rams to be identified in exhibition to be used for breeding identified Ewes | Total cost for purchase of identified Rams in exhibition (Districtwise) @ Rs. 30000/- per Ram (Rs. in lakh) | Number of persons required for daily recording growth, milk yield, health etc. @ 50 Ewe per person | Male Lambs having satisfactory growth rate and preferably out of twinning will be tentatively selected from identified ewes | Total cost for rearing the selected male lambs with progressive farmers till the age of final selection i.e. 9 months (feed + vaccine + mineral mixture)@ Rs. 5000/- per male lamb (Rs. in lakh) | Total cost (Col 8 + Col10 + Col13 + Col14) (Rs. in lakh) |
|--------|---------------------------------|----------------|-----------------------------|---------------------------------------|---------------------------------------------|---------------------------------------------------------------------------------|---------------------------------------------------------------------------------|---------------------------------------------------------------------------------|---------------------------------------------------------------------------------|---------------------------------------------------------------------------------|---------------------------------------------------------------------------------|---------------------------------------------------------------------------------|---------------------------------------------------------------------------------|
| 1      | Gaddi                           | Himachal Pradesh | Chamba                     | 103025                                | 312                                        | 28                                                                              | 28                                                                              | 9                                                                               | 19                                                                               | 312                                                                              | 16                                                                              | 94                                                                              | 146                                                                              |
|        |                                 | Mandi           |                             | 121118                                | 367                                        | 1101                                                                           | 33                                                                              | 33                                                                              | 10                                                                               | 22                                                                               | 367                                                                              | 18                                                                              | 110                                                                              | 172                                                                              |
| Total  |                                 |                 |                             | 224143                                | 679                                        | 2038                                                                           | 61                                                                              | 62                                                                              | 19                                                                               | 41                                                                               | 679                                                                              | 34                                                                              | 204                                                                              | 317                                                                              |

### MEAT BREED IMPROVEMENT PROGRAMME FOR SHEEP-GADDI (ARTIFICIAL INSEMINATION)

| Population selected for improvement | Areas (States) | No. of Institute/State Farm, etc to be selected for responsibility of A.I., etc. by State. | No. of Female expected to cover by AI (5 Yr) | Total ram required for AI lab. | Cost of Rams @ Rs 30000/- per ram for A.I. lab (Rs. in lakhs) | Cost for Liquid semen lab. or Frozen semen lab., LN2 tanker, Animal shed, Isolation & Quarantine shed., Machinery & Equipments, Biosecured fencing, semen carrier Van, Oestrous syn. Kit, ET/IVF accessories, etc. (Rs. in lakhs) | Monitoring and Evaluation = | TOTAL COST FOR HIMACHAL PRADESH = |
|-----------------------------------|----------------|---------------------------------------------------------------------------------|---------------------------------------------|-------------------------------|-----------------------------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------------------|-----------------|-----------------------------|
| Non descript                      | Himachal Pradesh | 1                                                                              | 72000                                      | 20                            | 6                                                              | 1000                                                            | 1006                                                            | 50               | 1373                        |

Note: Monitoring and Evaluation cost is Rs. 50 lakhs.