Raising of buffalo males for meat production

The Indian meat industry has seen a tremendous change during the last one decade wherein the modern state-of-art mechanized slaughter houses have changed the complete scenario of traditional meat industry. The importance of buffalo in India can be gauged by the fact that it is increasing faster than cattle, although in some East and Southeast Asian countries buffalo population has declined rapidly, which is a matter of concern. The primary importance of buffalo is for more milk in South Asia, and secondarily, for meat production. Therefore, its role for food security in India is well established. The price of buffalo meat is much cheaper than beef, chevon, mutton, pork and poultry and is, therefore, the cheapest source of protein to the weaker section of the society.

India has a competitive advantage in the export of buffalo meat.

- The livestock in India is reared in green pasture and agricultural crop residues under green livestock production system
- There is no practice of using hormones, antibiotics or any other chemical to promote growth
- The Indian livestock is free from the dreaded Bovine Spongiform Encephalitis (Mad Cow Disease), Rinderpest and Contagious Bovine Pleuropneumonia Disease (CBPD)
- Indian meat is free from radiation
- Because of its competitive prices and better blending characteristics, it forms a major ingredient in corn beef, hotdogs and other value added meat products.
- The animals are slaughtered strictly according to Halal method. Hence the meat is genuinely halal.
- Major importing countries (Vietnam, Malaysia, Egypt, Jordan, UAE) are nearer to India

In India, every year, about 10 million such male calves are removed from the buffalo production system due to intentional killing by the farmers to save dam's milk due to non-remunerative cost of raising male animals, thus incurring a loss of about Rs. 200 crores per annum. These calves could otherwise be salvaged for meat production, which will not only improve the economic condition of the farmers but would also provide quality meat for domestic consumption at competitive prices and also for export market. Raising these male calves will generate additional employment. Water Buffaloes have been domesticated in India long ago, and over the years they have become the primary producers of milk in India.
Buffaloes are contributing more than 51% of the total milk production of India. Apart from milk there has been a surge in the production of buffalo meat in the country. Despite the growth in the buffalo meat production and export, the buffalo population has shown a continuous upward trend for the past 5 decades. Only spent and unproductive buffaloes end up in meat industry. The growth in the buffalo meat industry also helps to augment growth in the leather industry.

Top 5 India’s Export Destination of Buffalo Meat (2019-20)

The buffalo population in India has been growing constantly. The buffalo population of India as per the 19th Livestock Census done in 2019 &2012 is 109.85 & 108.70 million respectively. The growth in population of male calves their population as compared to female calves is almost half. In 2012 the male calf population as compared to female calf population was just 53.6% indicating the country level mortality in male buffalo calves about 50 percent additional to the normal mortality observed in female calves as the sex ratio is 50:50 and male calves under one year are expected to be equal to female calves if the same level of mortality is observed in the calves of both sexes. There is a clear indication that the male calves are kept with apathy and they are not fed properly and die before they reach 1 year of age.
<table>
<thead>
<tr>
<th>Category</th>
<th>Population (In million) 2012</th>
<th>Population (In million) 2019</th>
<th>% Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buffaloes - Total</td>
<td>108.70</td>
<td>109.85</td>
<td>1.06</td>
</tr>
<tr>
<td>Total Male</td>
<td>16.10</td>
<td>9.28</td>
<td>-42.35</td>
</tr>
<tr>
<td>Total Female</td>
<td>92.60</td>
<td>100.57</td>
<td>8.61</td>
</tr>
<tr>
<td>In-milk</td>
<td>36.57</td>
<td>38.16</td>
<td>4.34</td>
</tr>
<tr>
<td>Dry</td>
<td>14.48</td>
<td>13.01</td>
<td>-10.19</td>
</tr>
<tr>
<td>Milch animals (In Milk + Dry)</td>
<td>51.05</td>
<td>51.17</td>
<td>0.22</td>
</tr>
</tbody>
</table>

The male buffaloes used for draught are also a meagre 21% at total heads as the animal draught power has been declining due to mechanization and the total animal power from cattle and buffaloes is less than 10 percent of the available total farm power from all sources (tractors, tillers, - electrical and human power). As the draught requirement for buffalo males is declining and the males required for breeding is small at 5.2 percent of total males (the male requirement will be much less with increasing coverage of artificial insemination) the meat function of male buffaloes is emerging with advantages.

The need of the hour is to have pragmatic slaughter policy for utilization of male buffalo calf for meat without any restrictions on disposal and utilization for meat. To start with if the prominent buffalo meat exporting States align their State slaughter policy accordingly will augment their States’ rural development as covered later. This has been promoted and recommended by National Commission on Agriculture (NCA) and many expert committee reports. In addition Government of India’s Meat Export Policy facilitates meat export from male buffalo calves.

**NCA (1976) Recommendations on Buffaloes for Meat**

The importance of buffaloes in Indian economy was realized as early as 1928 by Royal Commission on Agriculture. Later, National Commission on Agriculture (NCA, 1976) has made the following recommendations on buffalo development which aim at increasing buffalo meat production potential in India:
1. A fresh review and a study in greater depth should be made for a more satisfactory breed classification of the Indian buffalo stock.

2. The buffalo should be developed not only for enhancement of milk production but also for making it a source of production of quality meat.

3. Under the prevailing conditions attempts need not be made to develop distinctly separate milk and meat breeds or types of buffaloes.

4. A number of seed stock farms with at least 150 breeding she-buffaloes should be established.

5. In buffalo farms and research institutes wide scale investigations and studies should be undertaken on early weaning of buffalo calves and their rearing on low cost calf starters.

6. Research studies on the effect of feeding and husbandry on fattening of buffalo calves should be undertaken.

7. Promotional activity for consumption of buffalo meat in the country and consumer educational programme should be undertaken on a country wide scale.

8. A deliberate and energetic drive should be made to develop export trade in buffalo meat.

**Multi Benefits of Male Buffalo Calf Salvaging**

1. Conservation of buffalo elite germplasm from urban dairies in particular

2. Augmenting quality buffalo meat production.


4. Contributing to increase in animal protein supplies

5. Better buffalo productivity to augment buffalo milk supplies.

6. Increasing employment opportunities and ensuring better livelihood to farmers.

7. Complementing leather sector prospects through quality raw material supplies of hide and skins

8. Ensuring better quality buffalo meat to domestic consumer.

It is proposed that male buffalo calf rearing should be promoted on a very large scale so that it not only helps 54% of the Indian population which is involved in agrarian activities but helps small and marginal farmers who are primarily involved in animal husbandry activities, and they will have an alternate source of income, other than that from doing
agriculture labour. Rural women too will be involved in this activity as they can easily take care of male buffalo calves at home.

The Government of India under the National Livestock Mission (NLM) has rightly chosen to promote the Salvage of Male Buffalo Calves (SMBC), under the Entrepreneurship Development and Employment Generation (EDEG) scheme. Under the scheme the Government of India has declared three different promotion activities.

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Component</th>
<th>Unit size</th>
<th>Cost details</th>
<th>Pattern of Assistance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Individual units (Model – I) - farmers who own the calves</td>
<td>1-9 calves</td>
<td>Indicative Unit cost: Rs.6400/- per calf (Cost of concentrate feed, medicines, vaccination and insurance)</td>
<td>100% interest subsidy on short term loan. Maximum permissible short term loan is Rs 6400/- per calf. No capital subsidy is available under this component.</td>
</tr>
<tr>
<td>2</td>
<td>Commercial units (Model – II) - for those purchasing calves</td>
<td>10-50 calves</td>
<td>Indicative Unit cost: Rs.87000/- per rearing of 10 male calves (Purchase of calves, construction of shed, concentrate feed, fodder cultivation, medicines, vaccines, insurance etc.)</td>
<td>25% of the outlay (33 1/3 % in NE States including Sikkim and hilly areas*) as back ended capital subsidy subject to a ceiling of Rs 21,750 for a unit of 10 calves (Rs 29,000/- for NE States including Sikkim and hilly areas*). Maximum permissible capital subsidy is Rs 1.09 lakh (Rs 1.45 lakh for NE states including Sikkim and hilly areas*) for a 50 calf unit. No interest subsidy is available under this component.</td>
</tr>
<tr>
<td>3</td>
<td>Industrial units (Model – III)</td>
<td>1000 calves</td>
<td>Indicative Unit cost: Rs.83.45 lakh for rearing of 1000 male calves (Purchase of calves, construction of shed, concentrate feed, fodder cultivation, medicines, vaccines, insurance etc.)</td>
<td>25% of the outlay (33 1/3 % in NE States including Sikkim &amp; hilly areas*) as back ended capital subsidy subject to a ceiling of Rs 20.86 lakh (Rs 27.81 lakh for NE States including Sikkim and hilly areas*). No interest subsidy is available under this component.</td>
</tr>
</tbody>
</table>

# These are indicative costs. The subsidy will be calculated based on the indicative or actual cost, whichever is less. Banks are, however, free to sanction higher/lower Total Financial Outlay (TFO) also based on the local conditions.

* where the project site is located at an altitude of more than 1000 meters above the mean sea level.

In all the above schemes the subsidy will be routed through NABARD after recommendation of the State Government.
The birth weight of Murrah buffalo calves varies between 28-35 kg and for Surti 26 - 40 kg. The average growth rate of 400-500 gm/day can be achieved by ad-libitum urea-molasses feeding with restricted cereal fodder and 300-400 gm of concentrate/day from four months of age and 1.5 kg/day thereafter or a prepared commercial diet may be helpful to achieve the desired body weight faster. The Murrah calves grew at the rate of 550 to 700 gm per head per day with feed conversion ratio of 5:1.

**Profitability in Male Buffalo Calf Rearing**

To set up a male buffalo calf rearing centre, an entrepreneur or farmer needs basic infrastructure for housing the calves. In addition some simple machinery needed to chaff fodder and dispose dung. The expenditure on the same should not exceed Rs 10,000 to Rs 12,000 per animal. Male calves weighing 55 Kgs are available for Rs 3000-4000. Cost of fattening them to 350 kg body weight is approx Rs 30 to Rs 35 per Kg of body weight gain. The calves if fed well give a feed conversion ratio (FCR) of 6.0 to 6.5 and resulting in around 600 grams of average daily weight gain (ADWG) at farmer level. Therefore calves will take 16 – 18 months to grow from 50 Kg to 350 kg. The total cost of feeding a calf to grow it to 350 kg will be in the range Rs 9000 to Rs 10500. In addition there will be minor cost of
labour, medicines, utilities and adjustment for any mortality which will make the cost of finished calf at Rs 15000 – Rs 18000. As of today the mandi selling price of these calves is around Rs 25000. This gives a decent margin of Rs 7000-10000 per calf for the farmer or entrepreneur. The capital expenditure incurred by the farmer or entrepreneur can be recovered within 2-3 livestock crop rotations of 15-18 months each. The farmers margins would increase when the fodder resources are from own field. Ultimately the farmers of India will be encouraged to set up the mini buffalo calf rearing centres. These centres will be easily manageable by the members of the household, especially the women, who can look into the feeding and cleaning of these calves from four months of age, while men can pursue other activities. It will be akin to the Gujarat Amul model, where women are taking care of the milking buffaloes. These mini farms can be done by anyone, including landless and marginal farmers. They can make a cycle of getting 1 calf a month and selling 1 calf a month to make it a regular source of income. With time, the farmer can scale it to commercial level or maybe even industrial level. This will usher in the next rural revolution after the green and white revolution of 60’s and 70’s and help in rural prosperity. In nut shell the male buffalo calves rearing will give the following benefits.

1. This will give a boost to the rural economy.
2. It will give employment to rural landless, rural ladies etc.
3. It will help in efficient utilization of the crop residue which is currently being burnt or being destroyed.
4. It will help in selection of better breeds and also give boost to rearing of female calves on scientific lines, thereby adding more buffaloes for milking.
5. It will provide continued growth of export oriented meat industry.
6. It will help boost the leather industry.
7. It will help India earn valuable foreign exchange.
8. It will also help tide the protein deficiency in the local community.
9. It will also help increase area under fodder crops, thus adding to the crop diversification from rice in fertile Indo-Gangetic plains and help arrest the falling water table.

These schemes can further be linked with the APEDA registered export houses so that they not only can monitor the growth process, but give consultancy to the farmers and entrepreneurs on the same. They can have a buy back agreement with the farmers to ensure them the saleability of their product. This will also encourage banks to give commercial loans to the farmers who are willing to take this activity on industrial scale. APEDA registered meat export houses, will not only gain from getting quality animals for slaughter but it will
help them have some kind of traceability of the origin of animals so as to have close monitoring of the communicable diseases.

**Carabeef production potential in different states**

(a) States with high production of buffalo meat (carabeef),
(b) States with the largest number of export-oriented production units,
(c) States with maximum population of Muslim communities, as consumption of buffalo meat in India is limited mainly to Muslims and certain other minority communities, and
(d) States which are main procurement centres for live buffalo.

![State Selection Criteria](image)

While India has been exporting buffalo meat for almost two decades; this industry has only gained momentum in the last decade. This can be attributed to multiple factors, such as - increasing demand from developing countries (like China, Vietnam, Thailand, etc), as a major shipper of low-cost beef, especially to developing-country markets in Southeast Asia, the Middle East and North Africa, slaughtering method meeting the religious requirements of certain ethnicities, price competitiveness, high buffalo population, and low domestic consumption. The success of India’s buffalo meat exports to its being low-priced compared to regular beef.

The buffalo meat industry is largely unorganised and fragmented in nature; and only moderately regulated. It also remains vulnerable to risks pertaining to social and political sensitivity, sustainability of buffalo population, disease outbreak risk and high competition from the global beef industry (this was evident in 2015-16 when the buffalo meat exports from India declined for the first time in almost a decade as depreciation of Brazilian currency made Brazilian beef exports more attractive).

Data from the Department of Animal Husbandry, Dairying and Fishing(Govt. of India) shows cattle accounting for over 5 per cent of meat production in India, behind poultry (45 per cent), buffalo (19 per cent), goat (16 per cent), pig (8 per cent) and sheep (7 per cent). The 5 per cent figure may, however, be an underestimate, as it only includes animals officially slaughtered in municipal abattoirs. But even five per cent consumption getting blocked could cause many people to shift to carabeef and, hence, increased domestic demand for this meat at the expense of exports. The boom in exports of buffalo meat has been entirely private sector-driven and running on its own steam. This industry will survive and grow if there is a proper government intervention in terms of infrastructure such as modern abattoir
facilities, financial support to farmers as well as exporters and proper regulations governing farming to export of carabeef.

NOTE:

<table>
<thead>
<tr>
<th>Animals</th>
<th>Meat Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cattle (cow or bull)</td>
<td>Beef</td>
</tr>
<tr>
<td>Calf (young cow)</td>
<td>Veal</td>
</tr>
<tr>
<td>Pig</td>
<td>Pork</td>
</tr>
<tr>
<td>Deer</td>
<td>Venison</td>
</tr>
<tr>
<td>Sheep (Ram or Ewe)</td>
<td>Mutton</td>
</tr>
<tr>
<td>Pigeon</td>
<td>Squab</td>
</tr>
<tr>
<td>Water Buffalo</td>
<td>Carabeef</td>
</tr>
<tr>
<td>Goat</td>
<td>Chevon</td>
</tr>
<tr>
<td>Chicken</td>
<td>Chicken</td>
</tr>
<tr>
<td>Turkey</td>
<td>Turkey</td>
</tr>
</tbody>
</table>