Male Buffalo Calves - Potential Benefits of Neglected Wealth

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Abstract

The need for efficient buffalo production and utilization is important for sustaining purposes of buffalo keeping to enhance rural prosperity and livelihood. Male buffalo calves hitherto neglected to be reared in a big way (with mortality exceeding 50 percent of calves born) have immense potential to change the buffalo production economics and thereby the rural income and employment. By utilizing the available potential of male buffalo calves, farmers' income could be increased by Rs 35750 crores and the export earnings could be up to Rs. 60000 crores in addition to providing employment and benefits from other associated sectors and resulting inclusive growth. Exploiting the full benefits of male buffalo calf salvaging through the Government of India Scheme with pragmatic approaches and sustaining different stakeholders' interests has great potential in contributing to rural livelihoods and the National economy.

Keywords: Male buffalo calf, Rearing for meat, Export earning, Rural prosperity and livelihood, Neglected wealth.

1. Introduction

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 (BAHFS, 2014). 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. In the last fiscal, India produced 138 million tons of milk output of which approx 52% is from buffaloes, which would be worth Rs. 255.5 thousand crore. In addition India exported 1.47 million tons of buffalo meat, worth Rs. 29283 crores (APEDA, 2015). At the same time India exported from leather sector items worth Rs 39 thousand crore (US $ 6.5 billion) (CLE, 2015), of which a good part is from buffalo hides.

The buffalo population in India has been growing constantly. The buffalo population of India as per the 19th Livestock Census done in 2012 is 108.7 million (BAHFS, 2014). As given in Table 1, there has been a constant growth in total buffalo population, adult breedable female buffalo population, male buffalo calves below 1 year of age as well as female buffalo calves below 1 year of age. From 1951 to 2012 the absolute increase in buffalo population has been from 43.4 million to 108.7 million. Similarly the male calves below 1 year of age have increased from 2.9 million to 10.8 million. The female calves too have shown upward swing in number from 1951 to 2012, growing from 4.2 million to 20.2 million. But despite 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. As per the 19th Livestock Census held in 2012, the male calves below 2 years of age comprise 67.5% of all males (Table 2), which clearly indicates the usage of male calves is very limited and the farmers don’t want to keep them for various reasons. The male buffaloes used for draught are also a meager 21% at 3.4 million 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, -
Table 1: Changes in buffalo populations over the census periods

<table>
<thead>
<tr>
<th>Census Year</th>
<th>Buffalo calves (in Millions)</th>
<th>Adult breedable female Buffalo population</th>
<th>Calves % of adult breedable female buffaloes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
<td>Total</td>
</tr>
<tr>
<td>1951</td>
<td>2.9</td>
<td>4.2</td>
<td>7.0</td>
</tr>
<tr>
<td>1956</td>
<td>3.6</td>
<td>5.2</td>
<td>8.8</td>
</tr>
<tr>
<td>1961</td>
<td>4.0</td>
<td>5.8</td>
<td>9.8</td>
</tr>
<tr>
<td>1966</td>
<td>4.0</td>
<td>5.9</td>
<td>9.9</td>
</tr>
<tr>
<td>1972</td>
<td>4.4</td>
<td>6.5</td>
<td>10.9</td>
</tr>
<tr>
<td>1977</td>
<td>4.9</td>
<td>7.3</td>
<td>12.2</td>
</tr>
<tr>
<td>1982</td>
<td>4.2</td>
<td>8.4</td>
<td>12.5</td>
</tr>
<tr>
<td>1987</td>
<td>4.9</td>
<td>10.7</td>
<td>15.7</td>
</tr>
<tr>
<td>1992</td>
<td>5.5</td>
<td>12.0</td>
<td>17.5</td>
</tr>
<tr>
<td>1997</td>
<td>6.5</td>
<td>12.9</td>
<td>19.4</td>
</tr>
<tr>
<td>2003</td>
<td>7.4</td>
<td>15.3</td>
<td>22.6</td>
</tr>
<tr>
<td>2007</td>
<td>9.1</td>
<td>17.5</td>
<td>26.6</td>
</tr>
<tr>
<td>2012*</td>
<td>10.8</td>
<td>20.2</td>
<td>31.0</td>
</tr>
</tbody>
</table>

% increase in 2012 Over 1961

- Upto 2 years: 167.7% 247.3% 214.7% 126.1% 112.3% 18.4% 53.6% 39.2%
- Over 2 years: 95.4% 67.8% 76.5% 29.1% 29.1% 51.3% 30.0% 36.7%

*Male calves during 2012 (19th Census) were up to 2 years age while in other census it was under 1 year age. For practical population analysis the data of 2012 male calves can be considered as under 1 year category as the calves are largely are of under 1 year due to disposal for slaughter after one year age. Also, similar to other census periods male calves are about 50 percent of female calves in 2012 as well though the category was grouped up to 2 years age.

Table 2: Buffalo males categories and proportions (2012)

<table>
<thead>
<tr>
<th>Categories</th>
<th>Population</th>
<th>% Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upto 2 years</td>
<td>1,08,05,080</td>
<td>67.1%</td>
</tr>
<tr>
<td>Over 2 years</td>
<td>52,97,967</td>
<td>32.9%</td>
</tr>
<tr>
<td>a. Used for breeding</td>
<td>8,36,022</td>
<td>5.2%</td>
</tr>
<tr>
<td>b. Used for draught only</td>
<td>34,67,597</td>
<td>21.5%</td>
</tr>
<tr>
<td>c. Used for both draught and breeding</td>
<td>6,20,684</td>
<td>3.9%</td>
</tr>
<tr>
<td>d. Others</td>
<td>3,73,664</td>
<td>2.3%</td>
</tr>
<tr>
<td>Total males</td>
<td>1,61,03,047</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Source: 19th Livestock census (BAHS, 2014).
electrical and human power) (Mehta, 2007; Srivastava and Kakra, 2009). 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 advantage and increased productivity of buffalo species.

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 and many expert committee reports. In addition Government of India’s Meat Export Policy facilitates meat export from male buffalo calves.

2. Multi Benefits of Male Buffalo Calf Salvaging
   1. Conservation of buffalo elite germ plasm 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 materials supplies of hide and skins.
   8. Ensuring better quality buffalo meat to domestic consumer.

3. 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:
   • A fresh review and a study in greater depth should be made for a more satisfactory breed classification of the Indian buffalo stock.
   • The buffalo should be developed not only for enhancement of milk production but also for making it a source of production of quality meat.
   • Under the prevailing conditions attempts need not be made to develop distinctly separate milk and meat breeds or types of buffaloes.
   • A number of seed stock farms with at least 150 breeding she-buffaloes should be established.
   • 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.
   • Research studies on the effect of feeding and husbandry on fattening of buffalo calves should be undertaken.
   • Promotional activity for consumption of buffalo meat in the country and consumer educational programme should be undertaken on a country wide scale.
   • A deliberate and energetic drive should be made to develop export trade in buffalo meat.

Meat productivity potential of buffaloes has not been realized fully over the decades. This was mainly due to the neglect of male buffalo calves which were not available for utilization due to heavy mortality (more than 50 percent of calves born) and also surviving calves were under utilized in meat production at much lower age and under weight. It is estimated that there is a potential for rearing about 19 million male buffalo calves annually, including that of an estimated 5-10 million, male calves to be salvaged from death with appropriate interventions. With improved reproductive efficiency and better feeding the male buffalo calf availability could be further enhanced.

As per the 2012 Livestock Census, India has got 56.5 million breedable buffaloes, and the female buffalo calves under one year age are 20.2 million. Assuming equal number of male buffalo calves under one year age the surplus male buffalo calves for meat production would be about 14.3 million after meeting the requirement for breeding and draught at 24% (4.92 million) and mortality at 5% (1 million) (considerable mortality has taken place when buffalo calves population recorded at under 1 year age). All these calves have the potential to grow to 350 kg as an average live body weight within 2 years of their age. These in turn would sell for Rs 25000 each (as per current selling price of similarly grown male at animal mandis). Thus about Rs.35750 crore worth of male calves could sold every year. The same money would go to the farmers of India ushering in rural prosperity. These male buffalo calves would finally end up getting dressed at APEDA certified meat export houses and

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thus help India earn considerable valuable foreign currency which the country is in great demand for various essential requirements. In addition, the activity greatly benefits leather sector and other associated sectors besides providing employment.

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.

1. Mini Units: Rearing of male buffalo calves upto 25 units, a 25 % subsidy will be given to the farmer with a ceiling of Rs 6250 per calf.
2. Commercial Units: Rearing of male calves of more than 25 to 200 calves at one location, a 25 % subsidy will be given to the farmer with a ceiling of Rs 6000 per calf.
3. Industrial Rearing Unit: Rearing more than 200 calves to 2000 buffalo male calves at one location, a 25 % subsidy will be given with a ceiling of Rs 3125 per calf.

In all the above schemes the subsidy will be routed through NABARD after recommendation of the State Government. These schemes if given a proper push, will cause strategic intervention in the agrarian system and usher in massive economic upswing. All new strategic interventions in the country are taken with skepticism. Agriculture sector is more prone to this dogma. Therefore there is need to identify the leaders in agri-innovation who will spearhead this revolutionary idea. Farmers of Punjab, Haryana and Western Uttar Pradesh, are more receptive to new ideas and 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 focus should be to create Industrial Rearing Units and has got surplus crop residue to feed these calves. The focus should be to create Industrial Rearing Units at every 100 kms so that its popularity spreads by way of word of mouth and smaller units open on hearing the commercial merits of the male buffalo calf rearing.

4. Benefits for Meat Exporters

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 salability 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. Moreover well fed well fattened male buffalo calves will give higher dressing percentage than spent buffaloes. They are likely to have 52% carcass weight as compared to live body weight and their boneless weight from carcass weight could be 70% as compared to 66% in spent buffaloes. Male buffalo calves will yield bigger prime cuts which are likely to fetch better prices in the international market. Male buffalo calves reared for meat should be coming to slaughter at maximum of 2 years of age, which will ensure that their meat is tender, than that of spent buffaloes, and it is also likely to command better price in the international market. As such buffalo meat has got lower cholesterol than beef, therefore the health conscious people are lapping it up. In countries like Australia they consider tender buffalo meat as better than beef and they have got high demand for it.

5. 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 be set up include feeders, drinkers, pens, etc. 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 a maximum of 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.

6. Industrial Model for Male Buffalo Calf Rearing

It is pertinent that a strong push is required to the Industrial model (200-2000 calves) of the EDEG-SMBC scheme of the Government of India. It is recommended a higher subsidy of Rs 6000 per calf may also be extended to it, so that entrepreneurs can enter this scheme. To simplify the process of this subsidy, it should be routed through the APEDA and its certified Meat Export houses. The target should be that at least 100 of these 200-2000 calf centers should be opened in the Punjab, Haryana and West UP belt (1.8 Lakh Sq Km). An additional 100 centers should be opened in other parts of India. These Industrial Male Calf Rearing Centers will act as promoter of male buffalo calf rearing to the farmers who would then take this as backyard farming or commercial farming.

7. Mini Model for Male Buffalo Calf Rearing

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, 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 revolution of 60's and 70's and help in rural prosperity.

In a recent study by the meat export sector it has concluded that the total direct and indirect employment in the abattoirs and meat processing plants together with employment in by-products processing and sectors like poultry feed manufacturing and leather and similar associated sectors, the employment / engagement number exceeds 6 million persons. In case of Male Buffalo Calf Rearing the additional number of persons involved in rearing could be upto 10 million. In these figures majority would be rural landless and women and this avenue of engagement of the landless and women could provide a boost never seen before in rural development. In nut shell the male buffalo calf 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.

It will provide an unprecedented thrust for improving socio-economic-environmental status of rural India. Upto Rs. 35750 crores would go to the farmers as value for their reared male calves which would go a long way in ushering rural prosperity. These reared buffaloes through the APEDA certified meat export houses would help India earn more than Rs. 65 thousand crores equivalent valuable foreign exchange. Valuable by-products / co-products like hides for leather manufacture and various products for poultry feed will also be available for production / sale / export of downstream products and providing engagement of people. The fillip to employment / engagement of women running into several millions will be the basis of women empowerment and inclusive growth.

8. Conclusions

Enormous potential exists for male buffalo calf salvaging and growing them for larger weights with multiple benefits to the stake holders in particular to the resource poor buffalo farmers and the National economy. Scientific rearing of buffalo calves with reduced mortality is an essential requirement for improving buffalo productivity which is important for sustained buffalo production and utility with the increasing economic pressure and other constraints.

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affecting livestock production in general. Complimentary approach of major stakeholders such as dairy, meat, leather, feed and associated sectors needs emphasis in the sustained production of buffaloes with higher productivity for the mutual benefit. Appropriate interventional approaches such as male buffalo calf salvaging and rearing deserve priority because of the large potential and the Government of India initiated programmes. A large opportunity is available for realizing buffalo production potential due to modernization of buffalo dependent industries (dairy, meat, leather). Developmental programmes well supported by policy effort and extension approaches would make buffaloes to contribute immensely in rural prosperity.

References