

Production and exportation of buffalo meat from India to the world

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Abstract: The importance of large livestock population in India and its utilisation for meat production especially the buffalo meat and its potential for export has been discussed. The large buffalo population in the country of over 109 million, which is primarily held by small, marginal and landless farmers provide employment and income generation to the surplus family labour. The share of bovine meat from the total meat produced in the country is about 62% of which 32% comes from buffaloes. About 47% of the total buffalo meat is produced in the state Uttar Pradesh followed by Punjab (11.0) and Andhra Pradesh(10.6). The advantages of buffalo meat production in India and various steps involved in quality and safe meat production fit for human consumption have been discussed. India is number one in buffalo meat export with about 2 million tons per annum during the year 2014 – 15 to 72 countries of the world. Maximum export of about 47% is made to Vietnam followed by Malaysia(10.0) and Egypt(8.7). The trends of buffalo meat export to various countries of the world have been presented. Meat safety standards being followed at the abattoirs and the overall guidelines of meat export policy which is the state subject and varies from state to state in the country have been highlighted.

Key words: Abattoirs, bovine, HACCP, Meat Safety, Meat Quality

Introduction Meat production in India including poultry meat is estimated at 6.3 million tonnes (2014-15), standing fifth in rank in the world's meat production and account for 3% of the 220 million tonnes of total world meat production. India's livestock sector has continuously provided structural support to the rural economy as an important vocation for rural India, next only to crop production. There is big potential of meat production in the country due to the large livestock population (512 million) consisting of approx. 300 million bovines of which 191 million are cattle and 109 million buffaloes. The share of bovine meat is about 62% as against the small ruminants of 15% and 23% poultry. Buffalo contribute about 32% of the total meat production in the country. The buffalo meat sector therefore is one of the most important sectors in Indian economy.

Trends in Livestock Production and Meat Production in India – 2013

Livestock species	Population (millions)*	Animals slaughtered (millions)	% slaughtered	Av carcass weight	% Share in total meat production
Cattle	190.9	14.2	7.3	103.0	30.0
Buffalo	108.7	12.3	11.3	138.0	32.0
Sheep	65.0	19.2	33.7	12.0	2.7
Goat	135.1	47.0	33.6	10.0	6.1
Pigs	10.3	16.0	88.9	31.0	6.4
Total	512.0*	108.7	21.2		
Poultry	729.2	604.0	57.6	0.8	22.8

*Includes 0.298 m Mithun, 0.625 m Horses, ponies & donkeys and 0.400 m Camel

Source: DAH&D / Ranjhan, 2014

The domestic value chain for buffalo meat production in India consists of a network of stakeholders, who work within specific stage from farm to plate. The chain integrates livestock producers, traders, butchers, wholesale meat dealers, retailers and exporters. However, with changing world food production and consumption patterns, there is a need to develop a strategy for the future

BUFFALO MEAT PRODUCTION IN INDIA

India is the largest buffalo meat exporting country in the world. Production and export of buffalo meat in India started in the year 1969. The quantity of meat exported from India over the years has increased many folds and it is also evident that the number of countries to which the meat is exported has grown to 72 globally. Deboned meat having pH below 6 is exported. India has a competitive advantage in the export of buffalo meat primarily due to the availability of large male and spent surplus buffaloes available for slaughter besides many other advantages which are listed below.

- i. Large population and reared under agricultural crop residue system
- ii. There is no practice of using growth promoting hormones, antibiotics or any other chemicals for fattening of animals
- iii. The Indian buffalo meat is 93% lean, low in fat and cholesterol and blends very well with other ingredients for value added products
- iv. The animals are strictly slaughtered according to the Halal method as per requirement
- v. Indian buffalo meat is low in fat and cholesterol
- vi. The Indian livestock is free from mad cow disease (Bovine Spongiform Encephalopathy), Rinderpest and CBPP.
- vii. Animal welfare practices are followed as per the Society for prevention of Cruelty Act (SPCA) of 1960, Animal Welfare Board and Bureau of Indian Standards (BIS) for the transportation of animals to the slaughter houses.

Trends of buffalo meat production and share of meat production from different states in India. (Prod.,000 tons)

State	2009 – 10		2010 – 11		2011 – 12		2012 – 13	
	Prod.	% share	Prod.	% share	Prod.	% share	Prod.	% share
Uttar Pradesh	213.00	31.72	300.22	37.29	408.00	41.85	516.36	46.78
Punjab	66.00	9.83	89.12	11.07	93.37	9.58	122.12	11.06
Andhra Pradesh	95.00	14.15	102.22	12.70	111.69	11.46	117.69	10.66
Kerala	42.00	6.25	43.56	5.41	91.35	9.37	100.22	9.08
Delhi	24.00	3.57	34.35	4.27	36.00	3.69	55.95	5.07
Maharashtra	99.00	14.74	99.34	12.34	91.62	9.40	51.65	4.68
Bihar	42.00	6.25	42.07	5.23	43.00	4.41	44.25	4.01
Rajasthan	18.00	2.68	22.80	2.83	24.00	2.46	25.91	2.35

Madhya Pradesh	13.00	1.94	13.41	1.67	14.11	1.45	15.10	1.37
West Bengal	14.00	2.08	15.46	1.92	16.68	1.71	13.46	1.22
Total production	671.30		804.91		974.52		1103.60	

Source:

COMPONENTS OF MEAT INDUSTRY

There are distinct components of meat production, domestic consumption export and meat by-products and other related industries.

Trade in live animals: Livestock production is primarily associated with small, marginal and landless farmers and other weaker sections of the society in rural India. About 95% of the livestock population are in rural areas providing livelihood and food security. Meat export sector has provided increased marketing opportunities for these resource poor families, to increase their income at better prices. Sale price of unproductive animals would indicate increase in prices along with growth in meat exports. As rural women are largely associated with livestock production activities, increased returns have also benefitted the economic condition of rural women. Thus meat exports have substantially benefitted the rural weaker sections by way of increased returns for their unproductive and surplus male stock when disposed for meat.

Livestock markets: The live animals are sold in local livestock markets which are mostly weekly or monthly organised primarily by local bodies (Panchayat / Municipality / Corporation). The animals are either sold individually or in groups of 10 to 20 animals depending upon the demand and supply. Some of the agricultural marketing departments of the states have brought marketing of livestock under the Agricultural Produce marketing Acts (APMA) notified by the state government. In most of the markets annual fee is collected and transactions take place after the examination of the animals by the buyers / brokers / agents.

Municipal abattoirs: For domestic market there are about 4000 slaughter houses registered with the local bodies. Traders / individual butchers buy their animals from the local weekly markets and bring them to the municipal slaughter houses and cater to the domestic requirements at their individual outlets.

Retail Meat markets: At the retail markets in towns and municipal areas the meat from all the species e.g. goat, sheep, buffalo and poultry is sold at the same place. These retail shops are licensed to maintain the hygienic conditions and cooling conditions.

Export oriented abattoirs: There are about 45 integrated abattoirs cum meat processing plants where animals are received from the suppliers who procure the animals from local markets. Strict ante mortem and post mortem inspection along with *HACCP* are followed at these slaughter houses. Sanitary and phyto-sanitary requirements of the importing countries / *OIE* guidelines are strictly followed for the production of quality meat as per the requirements of international market. The meat is primarily deboned and deglanded, frozen and packed in cartons which are exported in refrigerated containers.

Export of meat

India is projected to be the largest exporter of bovine meat in the world (2015) followed by Australia and Brazil, though the exports from India declined from 2.082 million tons to about 2.00 million tons during 2014 to 2015 with decline of about 3.9% during the period. The trends of buffalo meat exports by various countries in the world are presented in Table 3.

Table 3. Trend of bovine meat export from different countries during 2014 and 2015.

Country	Export of bovine meat (million tons)		
	2014	2015	% change
India	2.082	2.000	- 3.93
Australia	1.851	1.815	- 1.94
Brazil	1.909	1.625	- 1.48
United States	1.167	1.035	- 1.13
New Zealand	0.579	0.590	+ 1.89
Paraguay	0.389	0.400	+ 2.82
Canada	0.378	0.375	- 0.79
Uruguay	0.350	0.360	+ 2.85
EU	0.300	0.300	0.00
Mexico	0.194	0.245	+ 26.2
World			

Source: FAS / USDA 2016

Indian buffalo meat export have been growing at an average of about 14% per annum since 2011 and fetching India about US \$4.8 billion in 2014. During 2013, India for the first time earned more from the export of buffalo meat than it did from the export of Basmati rice. The buffalo meat export to some of the leading countries is presented in table 4. About half of the total meat exported is made to Vietnam followed by Malaysia. However, there has been some decline in export volume to these countries whereas export to Russia has increased many folds in the recent years. The cost per unit of buffalo meat exported is given in Table 5.

Table 4. Trends of Buffalo meat export from India to various countries

Country	2013 – 14		2014 – 15		2015 – 16		% growth on previous year	% share in 2015 – 16
	Qty	value	Qty	value	Qty	value		
Vietnam	5,24,173	1,795	6,33,346	2,152	6,05,102	1,992	-7.44	48.98
Malaysia	1,21,741	388	1,30,876	422	1,35,936	410	-3.05	10.08
Egypt	1,07,821	338	1,28,082	422	1,15,317	357	-15.30	8.79
Saudi Arabia	74,599	247	73,821	259	64,649	216	-16.52	5.31
Iraq	29,992	87	23,602	66	42,986	117	76.93	2.88
Philippines	45,327	119	42,891	115	44,359	116	0.52	2.86
Algeria	48,840	139	42,672	125	40,664	114	-8.23	2.82
UA Emirates	42,793	129	40,876	130	35,496	114	-12.80	2.80
Thailand	1,74,018	296	1,15,649	393	35,382	108	-72.43	2.67

Kuwait	20,618	62	32,862	93	29,937	84	-9.84	2.08
Jordan	51,181	149	20,835	65	16,430	52	-20.70	1.28
Oman	13,579	43	11,891	38	12,655	40	4.52	0.98
Angola	35,489	99	34,127	96	16,769	35	-63.10	0.87
Turkmenistan	7,838	18	19,160	49	12,305	33	-31.45	0.83
Russia	0.00	0.00	1,128	3	8,654	29	667.02	0.72
Congo	15,229	39	14,679	37	10,736	26	-29.48	0.65
Iran	37,843	117	8,061	26	9,290	22	-13.81	0.56
Qatar	5,991	18	6,638	20	6,748	20	3.46	0.51
--72 countries								
Total	14,49,758	4,350	14,75,526	4,781	13,14,158	4,068	- 14.90	100.00

Source: DGCIS Annual Export

Table 5. Buffalo meat export cost over the years

Year	Rs. Per kg	US \$ /kg
2000 – 01	47.74	1.045
2001 – 02	47.03	0.986
2002 – 03	43.82	0.906
2003 – 04	44.70	0.973
2004 – 05	52.63	1.171
2005 – 06	57.17	1.291
2006 - 07	65.00	1.435
2007 – 08	73.46	1.825
2008 – 09	104.90	2.285
2009 – 10	112.18	2.366
2010 – 11	119.53	2.621
2011 – 12	142.50	2.921
2012 – 13	158.30	2.909

Meat Safety Standards

The demand for Indian buffalo meat is gradually growing in export markets due to its cost competitiveness, organic nature and less fat and low cholesterol content. The govt of India has laid down standards for export of meat which include standards for modern abattoirs which has enabled the Indian exporters to meet international demand of quality meat production. The registration of abattoirs and meat processing plants is done by the Agricultural and Processed Food Products Export Development Authority (APEDA), Ministry of Commerce and Industry Govt. of India. Inspection of the meat processing plant is carried by a committee of experts as per the laid down procedure. The committee comprises of representatives from Deptt. of Animal Husbandry, Min. of agriculture, Deptt. of Animal Husbandry of state government, export inspection council, secretary veterinary council of India and a veterinary scientist.

According to the current Export and Import policy of Govt. of India, each consignment is subjected to compulsory microbiological and a comprehensive pre – shipment inspection certificate is issued by the Government laboratory. The certificate also states that meat has been prepared from healthy, disease – free animal, which are free from contagious and infectious diseases, including foot and mouth disease and meat is fit for human consumption. There are number Food safety Regulation Acts in India which are strictly followed and are listed below

Milk and milk product Order, 1992

Meat and meat Product Order, 1973

Water (Prevention and Control of Pollution) Act, 1974

Air (Prevention and Control of Pollution) Act, 1983

Prevention of Food Adulteration Act, 1954

India is member country of Office International des Epizooties (OIE), Paris and is mandated to report list A and list B animal diseases to OIE at regular intervals. The OIE in its Terrestrial Animal Health Code has stipulated guidelines for trade in livestock and livestock products, which are recognised as international norms and India strictly follows these norms for export of meat.

The codex Alimentarius Commission has promulgated the concept of HACCP by adopting guidelines for application of the Hazard Analysis Critical Control Points (HACCP) system during its 20th session. The critical control points in processing safe and hygienic meat are the model codes mandated to be followed at the abattoirs.

Buffalo Meat Export Policy

The meat export policy was strengthened in the year 2004 when it was notified (vide no 12/2004 – 2009 dated 21.12.2004) that export of meat and meat products will be allowed subject to the exporter furnishing a certificate to customs at the time of export that these items have been obtained / sourced from an abattoir / meat processing plant registered with APEDA. The policy was further modified in 2011, by issuing a more comprehensive notification (No 829RE – 2010) 2009 – 2014 dated 31.10.2011 that

The exporters are required to certify that the items have been obtained / sourced from an APEDA registered integrated abattoir or from APEDA registered meat processing plant, and

That the raw material has been sourced exclusively from an APEDA registered integrated abattoir.

There are established rules on cruelty to animals and transportation which are required to be followed by the concerned under the prevention of Animal Cruelty Act, 1960 and the transport of Animal Rules 1978. The ministry of Commerce periodically reviews the meat export policy and takes necessary steps considering all stakeholders and national interests. In 2006, the policy was amended to ensure that all packages of buffalo meat for export display requisite details to ensure traceability and minimise malpractices.

Table 6. Foreign trade Policy for export of Bovine Meat

Sr no	Tariff HS Code	Item Unit	Item Description	Export Policy	Nature of Restriction
18	0201 1000 0210 2000 0210 3000 0202 1000 0202 2000 0202 3000	kg	Meat of cows, oxen and calves	Prohibited	Not permitted to be exported
19(a)	0201 1000 0201 2000 0202 1000 0202 2000	kg	Meat of buffalo (both male and female), fresh and chilled (bone in cuts) Meat of buffalo (both male and female) frozen (other cuts with bone)	Prohibited	Not permitted to be exported
19(b)	0201 3000 0202 3000	kg	Boneless meat of buffalo (both male and female) fresh and chilled Boneless meat of buffalo (both male and female) frozen	Free	Export allowed on production of a certificate from designated veterinary authority of the state from which the meat or offal emanate, to the effect that meat and offals are from buffalo not used for breeding and milch purpose. Quality control and inspection under note 3, 4 and 6 are fulfilled
	1503		Tallow, fat and or oils of any animal origin excluding fish oil	Prohibited	Not permitted to be exported as per schedule 2

Source: APEDA / Red Meat Manual

Issues for enhancing quality buffalo meat production and export

The control for slaughtering of animals for meat production lies with the state governments. Therefore the overall policy and control varies from state to state. Some of these aspects need immediate attention to promote meat production and export potential.

Salvaging of Male Buffalo Calves: In India, more than 15 million buffalo male calves are born every year. It is anticipated that about half of them are intentionally killed by the farmers, in order to cut down the cost of feeding and save on milk to be fed to these calves. Though, many of such calves which are from low producing buffaloes and are not required for breeding also end up in local markets at 8 to 12 months of age and are sold to the agents for supply to the abattoirs. There is a provision in the five year plan for salvaging these male calves to rear them for meat production.

Age of Slaughter for animals: Under the cattle protection acts of some state governments, only the buffaloes of 15 year of age and above and those which are unproductive, are allowed to be slaughtered. Meat Food Products Order (MFPO) 1973 has the provision as not to slaughter buffalo male calves of less than 6 months of age.

Individual Identification and Traceability: The codex guidelines clearly indicate that animals be reared in disease free and hygienic conditions at primary farm level to enable quality and safe meat. Though herds size in India are very small, but individual identification and recording system can boost the farm production system and productivity.

HACCP / ISO: 9001 Certification: Livestock Management has a major role to play in food safety, particularly with regard to pesticides and veterinary drug residues and introduction of pathogens and food spoilage organisms. Application of Sanitary and Phytosanitary measures (SPS) and Technical Barriers to Trade (TBT) agreement of WTO recognise international standards, guidelines and recommendations as reference points for facilitating trade and resolving international disputes. All the slaughter houses should have Hazard Analysis Critical Control Points (HACCP) and ISO: 9001 certification. This will definitely restrict the existence of unauthorised slaughter houses for the domestic as well as international market.

Role of veterinarians: The role of veterinary officers in production of quality and safe meat is very important. OIE has authorised the veterinarians to certify the safety of meat and issue certificate of fitness for human consumption. Following tasks are to be scrupulously performed by the veterinarians to maintain quality and safety standards. Transportation of animals, Ante – mortem inspection, Post-mortem inspection, Animal welfare, Implementation of HACCP, Microbiological inspection and issue of pre-shipment certificate are the aspects which need proper monitoring.

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