

ANALYSIS OF EXPORT POTENTIAL OF BUFFALO MEAT IN INDIA

Amandeep Kaur*, Shruti Chopra, Mohinder Singh Sidhu and Poonam Kataria**ABSTRACT**

The thrust of the present study was to explore the export potential of buffalo meat in India. India, the top buffalo meat producer in the world, is placed at fourth rank as buffalo meat exporter. During 2017 to 2018, Vietnam, Malaysia, Egypt, Iraq and Saudi Arabia are the five major destinations accounting for nearly 79% of the country's buffalo meat shipments, out of which Vietnam alone cornered 57%. India's current global supremacy in the buffalo meat production can only be translated into supremacy in exports as well, if stringent policy initiatives are put in place to promote export-oriented quality controlled production and processing.

Keywords: *Bubalus bubalis*, buffaloes, buffalo meat, carabeef, export, potential, India

INTRODUCTION

India has approximately 58 percent of the world's buffalo population, contributing significantly to the national economy in the form of milk and meat. The contribution of buffalo in bringing about the "White Revolution" in India is well acclaimed. India today is all set to achieve

the "Pink Revolution" through buffalo meat, also known as "carabeef" in the global market. The buffalo meat, being relatively low in fat and cholesterol is one of the most nutritious red meat providing cheaper options of animal protein. Buffalo meat has carved a niche in global trade by accounting for a little over one tenth of India's agri-exports.

The meat exports from India commenced in 1969 (Meat Tech Asia, 2016). The Supreme Court of India on 26th October 2005 upheld the constitutional validity of anti-cow slaughter laws enacted by different states in India for religious reasons and imposed a ban on the export of cattle beef. The existing meat export policy of India prohibits the export of meat of cow, oxen and calf. However, there is no restriction on slaughtering buffalo for meat (DAHDF, 2012; FICCI, 2013). Since late 2000s, India's buffalo meat export has expanded rapidly, with India emerging as the world's largest beef exporter in 2014. Over past few decades, India has won the distinction of a reliable exporter of risk free, lean, nutritious and competitively priced meat. Its demand in international markets has mounted up due to its organic nature. Vietnam, Malaysia, Egypt, Saudi Arabia and Indonesia are the important buyers of Indian bovine meat. The buffalo meat exported by India is mostly in the form of raw, de-boned

chunks which is used primarily in the processing and canning industry. Indian buffalo meat is ideal for processing because of its moisture retention characteristic making it amenable to binding with other ingredients. Buffalo meat, being tough, is preferred less in comparison to cow meat and can hardly make its way to kitchens for direct consumption by individuals. The rapid growth in India's exports is based on three factors, (i) rising demand for cost effective meat by consumers in developing countries; (ii) India's untapped huge buffalo population as a source of meat; and (iii) the increasing orientation of Indian private processors towards meeting the requirements of importing countries. In order to keep pace with the increasing demand of buffalo meat, efforts have been made to improve the infrastructure for the meat industry. India has 80 world-class export-oriented integrated meat processing plants and a few more are in the pipeline (APEDA, 2018).

As is being professed in the new agriculture policy that income of Indian farmers should be doubled, livestock has the potential to do so, as Indian buffalo meat has a huge demand in the international market. Against this backdrop, the present study has been envisaged to have an insight into the potential of buffalo meat exports from India

MATERIALS AND METHODS

In order to meet the objective of the present secondary data-based study, the data on the pertinent variables have been culled from various official and demi-official data portals; www.dahd.nic.in, www.apeda.gov.in, and www.indiastat.com to name a few. The time frame of the study has been selected as 1990 to the latest available and

the in-depth analysis of some of the critical facets concentrates on the most recent years.

RESULTS AND DISCUSSION

The results of the present study are presented under following heads:

Global buffalo meat production

Buffalo meat is the most widely used meat cuisine and its popularity among all the developed countries has led to thrust on increasing its production. The perusal of global buffalo meat production scenario reveals that buffalo meat production has been increasing overtime, attributed primarily to its increasing demand. It has increased from 3.51 million tonnes in 2011 to 3.83 million tonnes in 2016. As per FAO data, India, Pakistan, Egypt, China and Nepal are the major buffalo meat producing countries.

India occupied top position in buffalo meat production accounting for 42.2% of global buffalo meat production in 2016. The next in line was Pakistan with 23.4% share followed by Egypt (10.9 %), China (9.2 %) and Nepal (4.6 %). These countries happened to be consistent producers of buffalo meat (Table 1). Source: Food and Agricultural Organization (FAO).

India's strength in buffalo meat production

The production of buffalo meat in India has been spread over almost all the parts of the country with varying density of livestock population in different states and union territories. The buffalo meat production in India is concentrated in the Northern part (Uttar Pradesh, Punjab and Bihar) characterized by higher concentration of buffalo population. The other buffalo meat producing

states are Andhra Pradesh, Kerala and Madhya Pradesh (Table 2).

As per 2016 to 2017 figures, Uttar Pradesh with 28.2% of the buffalo population of India (19th Livestock Census, 2012) has been found to contribute as high as 47.9% to India's buffalo meat production. Besides having the country's largest buffalo population, Uttar Pradesh has the highest number of abattoirs-cum-meat processing export units. The state has 43 export-oriented units for buffalo meat. The major exporters from Uttar Pradesh include Hind Agro Industries, Al Noor Exports, Al Nafees Frozen Food Exports, Frigerico Conserva Allana, Rustam Foods, Rayban Foods Private, etc. Since the state has well established buffalo meat processing setup in place many units operating in Uttar Pradesh are procuring from neighbouring states of Bihar, Rajasthan, Chattisgarh, Jharkhand, Madhya Pradesh, Haryana and Punjab (Meat Tech Asia, 2016).

The three major buffalo meat producing states, *viz.* Uttar Pradesh, Maharashtra and Punjab together accounted for 67.8% of buffalo meat production in 2016 to 2017. The buffalo meat production of Uttar Pradesh increased from 300 thousand tonnes in 2010 to 2011, at a CAGR of 16.8 per cent, to 690 thousand tonnes by 2016 to 2017. The state of Punjab having 4.7% of the buffalo population in India (2012), has been occupying the third position all through the study period. The buffalo meat production in Punjab increased from 89 thousand tonnes in 2010 to 2011 to 124 thousand tonnes by 2016 to 2017 registering a CAGR of 6.1 per cent over the study period.

Buffalo meat export scenario

The global buffalo meat export scenario highlights that Australia, USA, Brazil, Netherland, New Zealand, Ireland, Canada are the major

players in global buffalo meat export. The global buffalo meat export has registered a slight fall from 8.79 million tonnes in 2014 to 8.68 million tonnes in 2016 (Table 3). Australia bagged the top most position exporting 1.22 million tonnes of buffalo meat accounting for 13.8% of the global buffalo meat trade during 2016. However, the contribution of Australia in buffalo meat exports has registered a decline of 13.1% from 1.41 million tonnes in 2014 to 1.22 million tonnes in 2016. The other competing countries are Brazil, USA, India with buffalo meat exports pegged at 1.179, 1.035 and 0.518 million tonnes respectively in 2016.

Although India leads in terms of world buffalo meat production, it is ranked at fourth position in terms of exports. It can be attributed to the fact that India fails to meet the international standards of quality and animal health related prescribed norms in the major markets. In case of India, buffalo meat export has registered a decline of 11.3 per cent from 584 thousand tonnes in 2014 to 2017 thousand tonnes in 2016.

India's buffalo meat exports in relation to agricultural exports

The buffalo meat export value from India has increased by 243.7 times from Rs. 1069 million in 1990-91 to Rs. 261615 million in 2016 to 2017 at an impressive CAGR of 20.3% in comparison to a corresponding rate of 9.2% observed in the case of agricultural exports at large (Table 4).

The contribution of buffalo meat exports in agri-exports of India has observed a significant rise from 1.8% in 1990 to 1991 to more than 10% post 2013 to 2014. Indian buffalo meat exports, worth Rs. 261620 million accounting for 11.5% of India's agricultural exports in 2016 to 2017 have emerged as one of the largest export segments after basmati rice. This has been made possible by the

competitive rates of Indian buffalo meat. Apart from that, there have been many other factors which have significantly impacted the buffalo meat exports. The section that follows is dedicated to the discussion on these factors.

Factors affecting buffalo meat exports

Quality considerations in terms of safety and hygiene

In order to make a niche in the global buffalo meat market, the food safety and hygiene considerations have been accorded top priority. In this regard care is taken to produce meat from animals procured from disease free zones. The processing plants strictly follow the sanitary regulations. To promote safe standards in exports, various steps have been taken from time to time. The Directorate-General of Foreign Trade (DGFT) issued a notification in 2011, vide which since June 2012, the meat and meat products for export purpose were to be sourced exclusively from APEDA- registered abattoir or integrated abattoir. India is free from all other bovine diseases, namely rinderpest, contagious bovine pleuropneumonia, lumpy skin disease, etc. In the case of foot and mouth disease (FMD), central and state government are taking serious control measures. All India Meat and Livestock Exporters Association (AIMLEA) has secured the necessary accreditations such as compliance to Codex Alimentarius Standards, OIE Terrestrial Animal Health Code, besides having ISO 9001:2000 for Quality Systems, Hazard Analysis and Critical Control Points (HACCP) for Food Safety, ISO 14001 for Environment Management and ISO 18001 for Occupational Health and Safety Management System for its members to facilitate export.

Meat consumption pattern

Meat consumption pattern varies widely across different nations due to different food habits, cultural and religious practices. Meat consumption, in India particularly, is determined by the religions where pork is forbidden to Muslims and beef is prohibited to Hindus. As per OECD data for the year 2016 to 2017, the per capita meat consumption in India is far less (3.3 kg) as compared to other nations like USA (90.0 kg), Israel (86.1 kg), Canada (69.0 kg), New Zealand (60.8 kg), Australia (60.8 kg), and Russia (60.8 kg). It was recorded the highest for USA during 2016 to 2017 (Figure 4). The low meat consumption in India may be attributed to the prevalence of majority of Hindu community (about 80% of the population in 2011) in the nation, who follow vegetarianism due to their religious beliefs. Meat consumption is confined primarily to India's minority specific Muslims (14%) and Christians (2%) communities. There is also ban on eating all kinds of non-vegetarian foods in the Jain religion. Further, Sikhs also do not consume cattle beef due to their religious and cultural values. Due to much less domestic demand of meat in the country, there is a great scope of meat exports in India.

The Hindu religious restrictions on the slaughter and consumption of cattle do not apply to buffalo meat, demand for buffalo meat appears to be limited among Hindus. The limited consumer preference for meat, may it be from cattle or buffalo, in India is evident from the relatively low per capita consumption of meat relative to that in other countries, including those with similar levels of per capita income (Landes *et al.*, 2016).

Production *vis-à-vis* exports of buffalo meat

Due to relatively low domestic consumer preference for buffalo meat, the surplus production is available for exports. Moreover, the Indian

buffalo meat has competitive position in world markets in terms of lower prices and proximity to key consuming markets in Southeast Asia and West Asia.

Export market of Indian buffalo meat

The export scenario of Indian buffalo meat has been presented in Table 5. The buffalo meat exports from India have gone down by 11.1% in quantity terms from 2014 to 2015 to 2017 to 2018. The major destinations for its exports include muslim-majority countries such as Malaysia, Egypt, Saudi Arabia and Iraq. The largest market for Indian buffalo meat is Vietnam accounting for a little more than half (57%) of the Indian buffalo meat exports worth Rs. 147701 million in 2017 to 2018 up from Rs 132047 million in 2014 to 2015. On the other hand, Malaysia accounting for mere nine per cent share of Indian buffalo meat exports worth Rs. 23889 million is a distant second, followed by Egypt (with 6.3% share), Iraq (3.9% and Saudi Arabia (2.9%). All the five major export destinations account for nearly 79% of the country's buffalo meat shipments.

In spite of large livestock population, the meat industry could not flourish on account of negative perceptions. Although, India has acquired number one status in the world contributing 42.2% of the global buffalo meat production in 2016, it is lagging behind on export front owing to various quality constraints. Indian buffalo meat exports cannot stand in competition with U.S. beef exports, primarily because of quality preferences and animal health regulations laid down by major import markets the U.S. caters to (Landes *et al.*, 2016). That is the reason for, India's primary export markets being entirely different from those served by United States. The major chunk of the

comparatively superior quality and hence higher priced beef exports by the United States goes to affluent markets, such as Japan, Canada, Hong Kong, and South Korea, as well as the neighboring Mexican market. To the contrary, the bulk of Indian exports go to relatively low-income markets that are more sensitive to price than quality, and to the markets with a preference for meat produced to halal standards.

Indian buffalo meat sector: state wise prospects

Uttar Pradesh, the leading buffalo meat producing state of the country accounted for 47.9% of the total buffalo meat production during 2016 to 2017. There are about 43 out of 80 abattoirs-cum-meat processing plants at present approved by Agricultural and Processed Food Products Export Development Authority in India (APEDA, 2018). The state with 22% of the total Muslim population of the country, has a reasonably good domestic demand for buffalo meat and given the large quantum of buffalo meat produced, has a good scope for exports (Table 6).

On the other hand, the state of Punjab accounts for nearly 9 per cent of the total buffalo meat production in the country during 2016 to 2017 and has only five exporter units (Abbot Cold Storage Pvt Ltd, MK Overseas (P) Ltd, Mirha Exports Pvt Ltd, Federal Agro Industries Pvt Ltd and ALM Food Products Limited) available. The fact that only 0.2% of the India's Muslim population resides in Punjab points towards very low or negligible domestic demand for buffalo meat and ample scope for buffalo meat exports. For Punjab to exploit its potential in buffalo meat exports, there is a need for more export-oriented processing units in the state which may entail a huge cost per an analysis, a sum of Rs. 390 million is required to establish an export

Table 1. Contribution of different countries in buffalo meat production.

Year	Global production, million tonnes	Contribution, %				
		India	Pakistan	Egypt	China	Nepal
2011	3.51	42.8	22.1	11.3	8.8	4.8
2012	3.60	42.5	22.2	11.3	8.6	4.8
2013	3.72	43.3	22.4	10.5	9.0	4.7
2014	3.72	43.4	22.7	10.2	9.1	4.7
2015	3.77	42.3	23.0	10.8	9.2	4.6
2016	3.83	42.2	23.4	10.9	9.2	4.6

Table 2. Statewise buffalo meat production scenario in India. ('000 tonnes).

Year	India	Uttar Pradesh	Maharashtra	Punjab	Kerala	Telangana	Andhra Pradesh	Bihar	Others
2010-11	805.1	300.2 (37.3)	99.3 (12.3)	89.1 (11.1)	43.6 (5.4)	-	102.2 (12.7)	42.1 (5.2)	128.6 (16.0)
2011-12	974.8	408.0 (41.9)	91.6 (9.4)	93.4 (9.6)	91.4 (9.4)	-	111.7 (11.5)	43.0 (4.4)	135.7 (13.9)
2012-13	1103.9	516.4 (46.8)	51.7 (4.7)	122.1 (11.1)	100.2 (9.1)	-	117.7 (10.7)	44.3 (4.0)	151.5 (13.7)
2013-14	1164.3	563.2 (48.4)	60.4 (5.2)	121.3 (10.4)	93.4 (8.0)	-	122.5 (10.5)	60.5 (5.2)	143.0 (12.3)
2014-15	1403.5	751.5 (53.5)	84.5 (6.0)	118.6 (8.5)	109.3 (7.8)	79.1 (5.6)	65.0 (4.6)	60.8 (4.3)	134.7 (9.6)
2015-16	1611.0	846.2 (52.5)	139.9 (8.7)	131.0 (8.1)	110.2 (6.8)	87.7 (5.4)	79.8 (5.0)	68.3 (4.2)	235.7 (14.6)
2016-17	1450.9	694.6 (47.9)	165.4 (11.4)	124.5 (8.5)	106.1 (7.3)	96.0 (6.6)	87.1 (6.0)	74.3 (5.1)	198.9 (13.7)
CAGR, % (2010-11 to 2016-17)	11.4	16.8	10.8	6.1	11.8	-	-6.04	11.1	8.5

Note: The state of Telangana was formed on June 2, 2014.

Figures in parentheses indicate percentages to the total.

Source: State Department of Animal Husbandry, Dairying and Fisheries, various State Governments.

Table 3. Global buffalo meat export scenario. (Quantity: '000 tonnes).

Year	2014	2015	2016
World	8799	8814	8684
	Exporting countries		
Australia	1410 (16.0)	1464 (16.6)	1225 (13.8)
Brazil	1130 (12.8)	1048 (11.9)	1179 (13.6)
USA	946 (10.8)	850 (9.6)	1035 (11.9)
India	584 (6.6)	557 (6.3)	518 (5.8)
New Zealand	442 (5.0)	484 (5.5)	461 (5.2)
Netherlands	413 (4.7)	426 (4.8)	431 (4.8)
Ireland	403 (4.6)	387 (4.4)	400 (4.5)
Canada	306 (3.5)	305 (3.5)	356 (4.0)

Note: Figures in parenthesis represent percentage of the world exports.

Source: UN Comtrade, as reported by the importing countries.

Table 4. Agriculture exports and buffalo meat exports vis-a-vis total national exports, 1990 to 1991 to 2016 to 2017. (Rs. Million).

Year	Total exports	Agriculture exports	Agriculture exports % of total exports	Buffalo meat exports	Buffalo meat exports % of agri exports
1990-91	325273	60128	18.5	1069	1.8
1995-96	1063534	203977	19.2	5550	2.7
2000-01	2013565	286574	14.2	13749	4.8
2005-06	4564179	492170	10.8	26381	5.4
2010-11	11369642	1130466	9.9	86140	7.6
2011-12	14659593	1828010	12.5	137573	7.5
2012-13	16343183	2271926	13.9	174202	7.7
2013-14	19050110	2627785	13.8	264724	10.1
2014-15	18964455	2396810	12.6	292892	12.2
2015-16	17163781	2153966	12.5	266881	12.4
2016-17(P)	18494288	2266519	12.3	261615	11.5
CAGR, % (2010-11 to 2016-17)	7.1	9.2	-	20.3	-

Source: www.indiastat.com

Table 5. Export scenario of Indian buffalo meat-over time.

Year	Quantity, '000 tonnes	Value, Rs. million	% Age share in value in agri-exports	Major importing countries							
				Importer	Vietnam	Malaysia	Egypt	Thailand	Saudi Arabia	Value	% share
2014-15	1476.3	292892	12.2	Importer	Vietnam	Malaysia	Egypt	Thailand	Saudi Arabia	Value	% share
					132047.4	25859.4	25739.4	24248.5	15848.3		
2015-16	1314.5	266881	12.4	Importer	Vietnam	Malaysia	Egypt	Saudi Arabia	Iraq	Value	% share
					131249.4	26829.5	23258.6	14158.0	7667.5		
2016-17	1323.6	261615	11.6	Importer	Vietnam	Malaysia	Egypt	Indonesia	Saudi Arabia	Value	% share
					135794.9	23775.5	20267.5	15323.3	9984.5		
2017-18	1350.6	260338	NA	Importer	Vietnam	Malaysia	Egypt	Iraq	Saudi Arabia	Value	% share
					147701.0	23889.9	16456.1	10056.6	7590.0		
					56.7	9.2	6.3	3.9			

Source: APEDA

Table 6. Status of leading buffalo meat producing states.

States	Buffalo meat produced,* (% of total) 2016-2017	Muslim population,# (% of total Muslims in India)	Abattoirs-cum-meat processing plants (Number)	Remarks
Uttar Pradesh	47.9	22	43	Production, consumption and export potential
Maharashtra	11.4	7	16	Production, consumption and export potential
Punjab	8.6	0.2	5	Export potential
Kerala	7.3	6	1	High domestic demand, potential for production
Andhra Pradesh	12.6	5	8	High domestic demand, potential for production,
Bihar	5.1	10	4	Procurement centre for exporters

Source: *APEDA, # Population Census, 2011

Table 7. SWOT analysis for buffalo meat exports.

Strengths	Weaknesses
<ul style="list-style-type: none"> - Leading producer of buffalo meat. - Relatively low domestic consumer preference for buffalo meat, so the surplus production is available for exports. - Competitive position of Indian buffalo meat in world markets in terms of lower prices and proximity to key consuming markets in South-east Asia and West Asia. 	<ul style="list-style-type: none"> - Non-productive, dairy animals are used for buffalo meat production in India. - Dearth of strict sanitary standards during the rearing of buffaloes for meat production purpose.
Threats	Opportunities
<ul style="list-style-type: none"> - Prevalence of Foot and Mouth Disease (FMD). 	<ul style="list-style-type: none"> - Eradication measures for FMD can help to boost buffalo meat exports from India. - India has the potential to tap the markets of more developed countries by adopting strict adherence to sanitary measures during buffalo meat production. - Development of private, export-oriented slaughter and packing facilities in production hubs.

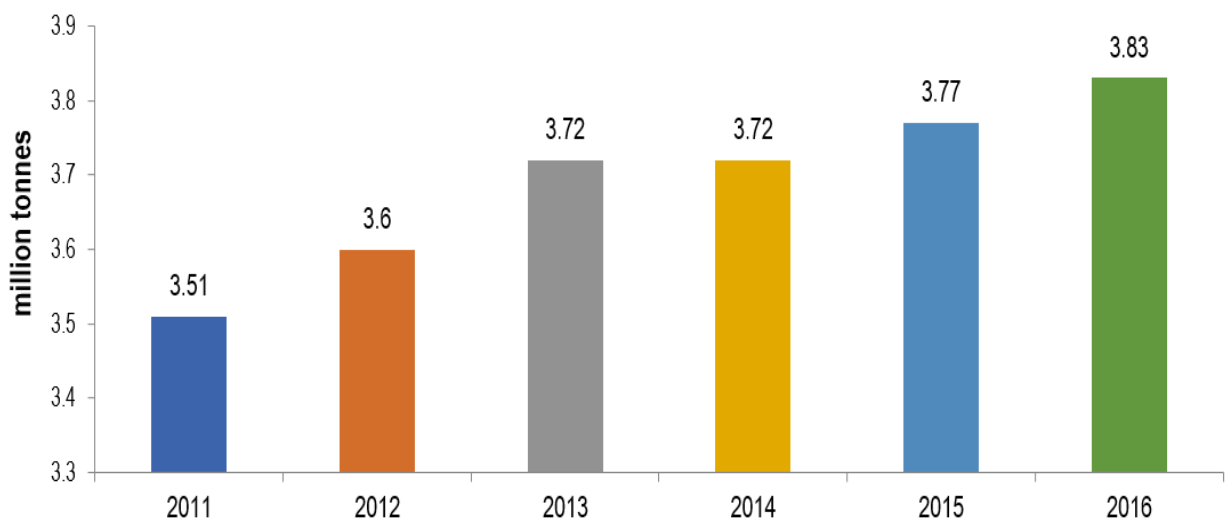


Figure 1. Buffalo meat production in the world (million tonnes).

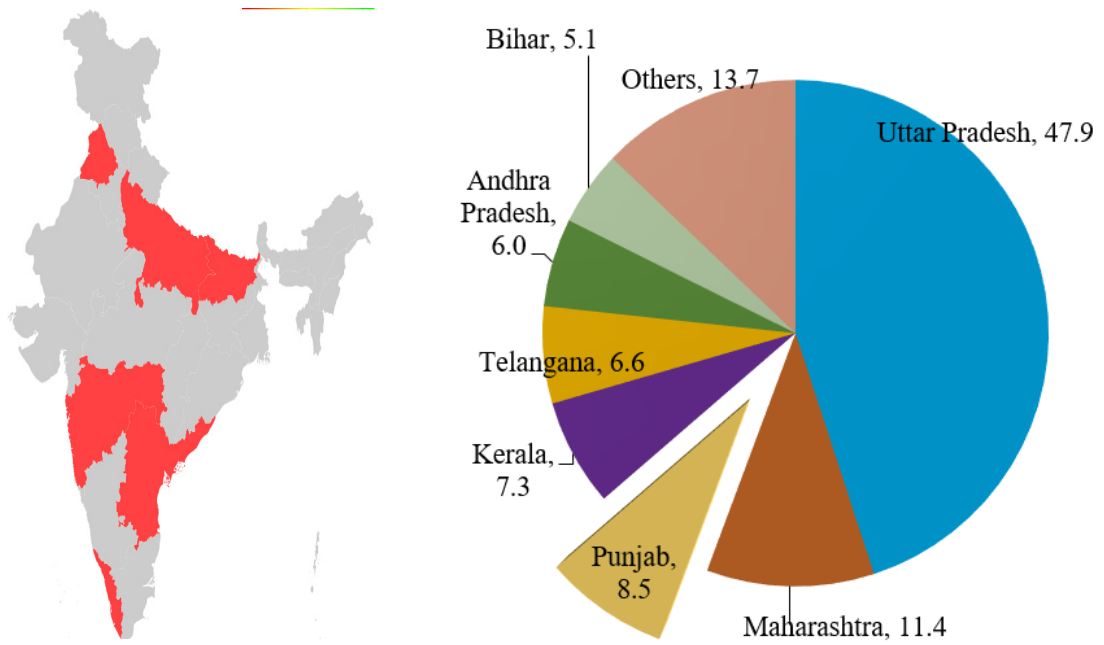


Figure 2. Major buffalo meat producing states of India, 2016 to 2017.

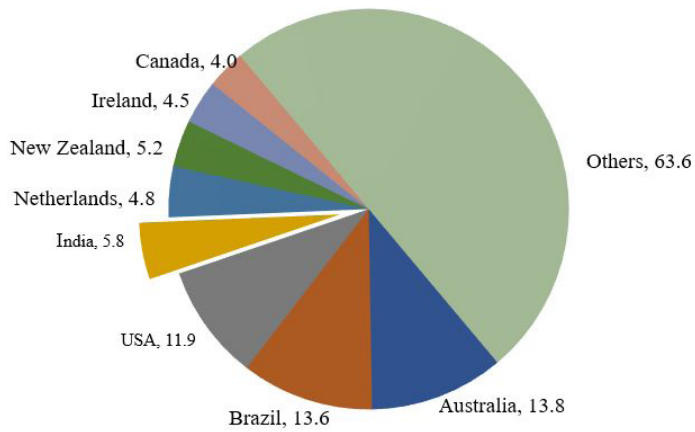


Figure 3. Major players in buffalo meat export (quantity), 2016.

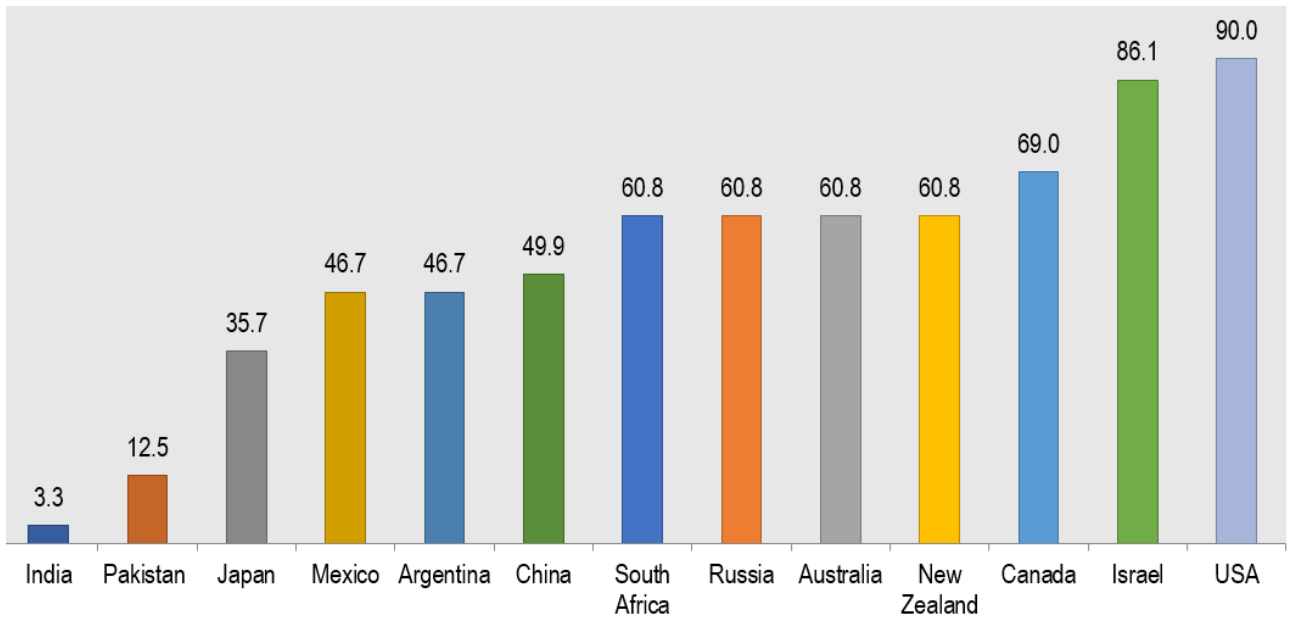


Figure 4. Meat consumption (kg/person), 2016 to 2017.

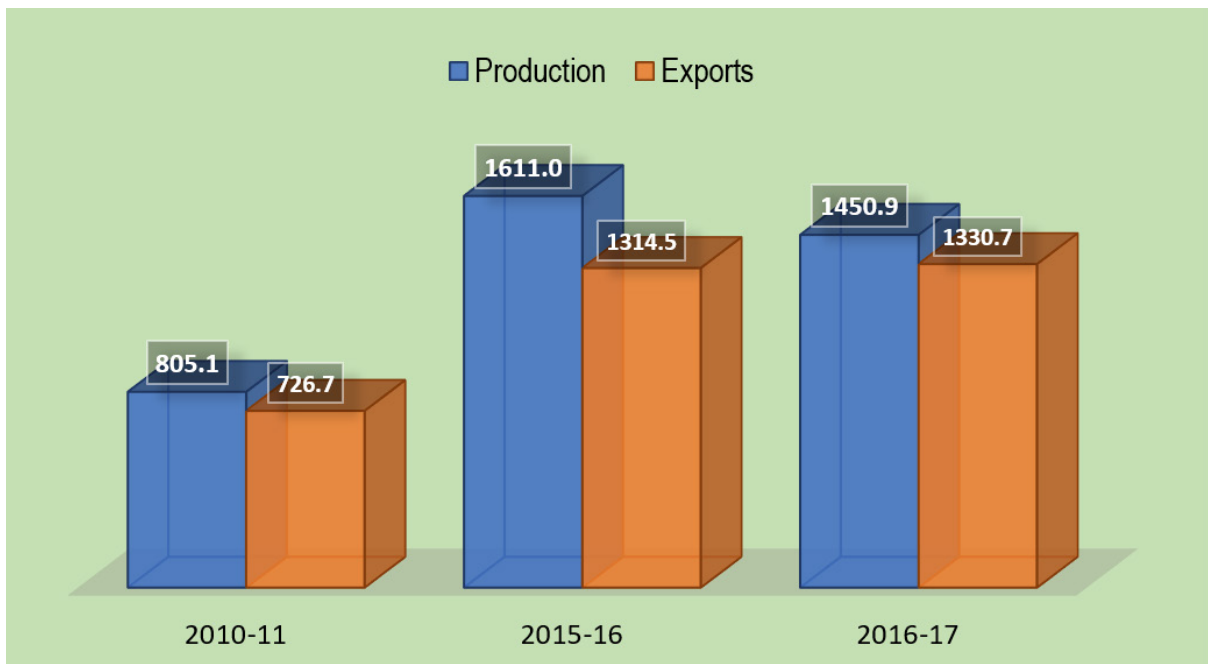


Figure 5. Production vis-à-vis exports of buffalo meat ('000 tonnes).

unit with production capacity of 700 heads/day (FICCI, 2013) which necessitates the Government support to capture its full potential in buffalo meat exports.

Time to bring paradigm shift in buffalo meat sector

Although, Indian buffalo meat industry has several inherent strengths and has opened up multitude of avenues all across the value chain and export; the sector is grappling with few external as well as internal setbacks. Out of several bottlenecks, prevalence of Foot and Mouth Disease in the country is perturbing (Audarya, 2020) and calls for prompt eradication measures for FMD can help to boost buffalo meat exports from India in near future (Table 7).

CONCLUSIONS

Policy implications

Indian buffalo meat has a huge demand in the international market, which can be fulfilled by focussing on the strategic states. India has the potential to increase the buffalo meat exports by tapping the markets of more developed countries by adopting strict adherence to sanitary measures during the production stage. There is a dearth of strict sanitary standards during the rearing of buffaloes for meat production purpose. India has been attracting buyers because of competitive rates for its buffalo meat which makes it stand at fourth position in the exports of buffalo meat. India's global supremacy in the buffalo meat production can well be translated into supremacy in exports provided stringent policy initiatives are taken to promote export-oriented quality controlled production and processing.

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