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# Economics of Production, Marketing and Constraints of Buffalo Milk in Indore District of Madhya Pradesh

**A.R. Verma***

An attempt has been made in the paper to analyse the economics of production, marketing and constraints of buffalo milk in Indore district of Madhya Pradesh. It examines the cost and returns per year, the net return, cost of milk production per litre, benefit-cost ratio, evaluate the resource use efficiency, price spread and marketing efficiency of small, medium and large size-groups of buffalo farms. Multi-stage stratified sampling method was used for the selection of the ultimate unit of the sample. Indore block of Indore district was selected for the study and five villages were selected randomly from Indore block. In all 50 milk-producer households (buffalo) were selected for one lactation period. For the collection of information pertaining to marketing of milk, 10 milk vendors, 10 halwais and 2 private dairies were also randomly selected. The primary data were collected by survey method during the year 2005-06. To examine the resource use efficiency in all farmers Cobb-Douglas type of production function was used and marginal value product (MVP) to opportunity cost (OC) ratios were computed to estimate the efficiency of resource use. The results of the study revealed that on an average, the total cost of maintenance of a buffalo worked out to Rs. 21, 368. The farmers of large size groups had incurred higher expenditure on the maintenance of a buffalo as they had maintained buffalo of relatively better breed and had made higher investment on fodder and concentrates for maintaining them. The average net income per buffalo per annum worked out to Rs. 9,286. The explanatory variables used in the production function were green fodder, dry fodder, concentrates and human labour. An unremunerative price of milk and milk products was the major constraint followed by delayed payment for milk and milk products, inadequate price for milk, poor credit facilities, disease outbreak, etc. Payments made in fractions were for the major factors which led the imperfect market situations and lower income to the producers in the region. The marketing constraints affect the profits to entrepreneurs adversely. Removal of marketing bottlenecks would go a long way in improving the cost of dairy entrepreneurs. However a large number of buffalo dairy entrepreneurs complained that the weak financial status, cost factor and management difficulties, non-availability of green fodder round the year, lack of improved breed of milch animals, lack of training about improved practices, low risk bearing capacity, high cost of fodder and concentrates, high cost of medicine, uncertainty of monsoon, lack of information

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about various development programmes, and non-availability of extension services were the major constraints confronted by the farmers in not maintaining good quality of animals on the farms. The respondent farm families strongly expressed the dire need of finance for the purchase of animals and also for feed, fodder and veterinary aid. The buffalo enterprise should be organised as an independent enterprise on commercial basis by providing capital and credit at subsidised rates, insurance and encouraging the establishment of more co-operative societies to provide production and marketing services to the dairy farms in the rural areas of Madhya Pradesh. Government should encourage and help milk producers in organising co-operatives since they are poor and illiterate. The animal husbandry department should enhance their extension activities by acquainting the farmers with improved management and feeding practices of milch animals. Thus dairy farming is considered as an instrument of socio-economic change in the rural areas.

## Marketing of Milk in Amravati District of Maharashtra

**T.B. Deokate†, P.N. Shendage‡ and K.L. Jadhav†**

An attempt has been made in the present study to identify the channels involved in marketing, to estimate the marketing cost, market margins, price spread and producer's share in consumer's rupee in different marketing channels of milk in Amravati district of Maharashtra. The primary data for the year 2002-03 were collected by survey method from 80 milk producers, 16 each randomly selected from five villages of the study district. Four breeds of animals, viz., local cow, crossbred cow, local buffalo and improved buffalo were considered for the study. The information was collected for a group of 20 milk producers of each breed and the data were analysed using simple tabular analysis. For the present investigation, in all five types of marketing channels were identified, viz., Channel I - Producer → Consumer, Channel II - Producer → Vendor → Consumer, Channel III - Producer → Private milk collecting agency → Distributor → Consumer, Channel IV - Producer → Hotel Owner → Consumer and Channel V - Producer → Milk co-operative society → Government milk scheme → Distributor → Consumer (only cow milk). The analysis indicated that in Channel V the selected buffalo milk producers were not interested in selling milk to co-operative societies as they pay lower price to buffalo milk although the fat percentage in the buffalo milk was found to be more. Among the various channels of milk marketing, Channel I (Producer-Consumer) has the highest producer's share in consumer's rupee for buffalo milk and cow milk being 97.26 per cent and 96.52 per cent, respectively. Thus Channel I was found to be more profitable in regard to sale of milk directly to the consumer.

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# Economics of Value-Added Dairy Products Manufacturing by Co-operative Dairy Plant in Tamil Nadu

**N. Rangasamy and J.P. Dhaka***

A study was conducted to estimate the manufacturing cost and profitability of dairy products in one of the dairy plants from co-operative sector selected purposively in Coimbatore district of Tamil Nadu. The major dairy products like toned milk, standardised milk, full cream milk, flavoured milk, butter and ghee were taken for this study from the selected dairy plant and the data were collected for the financial year 2001-02 from the processing and manufacturing and account sections of the selected dairy plant. The collected data were processed and analysed to ascertain the manufacturing cost and profitability of different dairy products by using tabular analysis. The manufacturing cost of various products, namely, toned milk, standardised milk, full cream milk, flavoured milk, butter and ghee worked out to Rs. 11.06 per litre, Rs. 12.86 per litre, Rs. 14.06 per litre, Rs. 43.35 per litre, Rs. 82 per kg and Rs. 98 per kg, respectively, for co-operative plant. The profitability of dairy products, namely, toned milk, standardised milk, full cream milk, flavoured milk, butter, ghee and milk peda were estimated to be Rs. 0.58 per litre, Rs. 0.79 per litre, Rs. 0.69 per litre, Rs. -0.05 per litre, Rs. 13.83 per kg, Rs. 15.51 per kg, Rs. -2.13 per kg respectively for co-operative dairy plant. The study concluded that more value-added dairy products like butter and ghee were more profitable than less value-added liquid milk varieties, viz., standardised milk, toned milk and full cream milk. The dairy products like flavoured milk and milk peda earned negative margins due to the lowest quantity of products manufactured and sold than the other dairy products. Hence the co-operative dairy plant should utilise full plant capacity and replace old milk plant machineries and equipments to reduce the operational costs and improve operational efficiency of the dairy plant. To employ qualified persons in the co-operative dairy plant effort should be made to recruit qualified persons which would improve the handling knowledge of dairy products. Importance should be given to manufacture higher quantity of value-added dairy products without compromising on the quality to earn more profits. The co-operative dairy plant should bring down their operational cost by avoiding superfluous expenses and reorient its product mix according to changing market environment.

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## Live Animals Marketing Pattern in Western Uttar Pradesh

**A.N. Shukla and Nasir Hussain†**

The paper aims to study the structure of cattle fairs, marketing agencies, arrivals and disposal of animals. For the purpose six important cattle fairs, three each, were selected from the study area of the western region from two districts, i.e., Moradabad and Aligarh, to study the arrivals and sales pattern of livestock. Thus Dalpatpur, Got-Doraaha and Bilari cattle market have been selected from Moradabad district to study the cattle and buffaloes marketing pattern while Khair, Chandaus and Iglas cattle fairs were selected in Aligarh district to study the marketing pattern of small ruminants. The study showed that in Moradabad cattle fair the aggregate per cent of transaction of total arrival during the year was 26.23, 22.10 and 30.49 per cent of cows, buffaloes and bullocks, respectively. The procedure of purchase and sale of livestock is based on negotiation between the buyers and sellers. The month-wise variation in the sale of livestock of the total arrival in different seasons was not much pronounced. It ranged between 23 per cent in the month of March to 30 per cent in the month of October in the case of cows. While in the case of buffaloes the range of variation in sales pattern was between 20 per cent in the month of May to 26 per cent in the month of January. It was observed that the disposals of animals in Aligarh cattle fairs during the year to the total livestock was about 31 per cent, while the percentage of sale of total arrivals in case of cows, buffaloes, bullocks, sheep and goat was about 25, 26, 21, 43 and 43 per cent respectively. The percentage of sale, out of total arrivals of small ruminants was higher as compared to cattle. Besides in the villages, where maximum numbers of livestock were transacted, they followed the same norms related to price of livestock including cattle, buffaloes, sheep and goats as in the case of local panchayat levels. The study showed that the charges paid by the buyers was Rs. 40 per animal while for the small ruminant it was Rs. 10 per head/animal. The present system of live animals market organized through cattle fairs is very much seasonal and thus the cattle fair organised at different levels forms only the means of marketing of livestock. The study suggests provision of necessary amenities in the cattle fair and publicity of cattle fairs and the government should build pucca sheds in the mela ground to overcome the inconvenience caused to the cultivators and dealers.

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## Marketing of Wool in Dhule District of Western Maharashtra

**M.N. Waghmare, S.N. Tilekar and S.R. Rajput***

An attempt is made in the paper to study marketing of wool. The study is exclusively based on primary data collected from a sample of 90 sheep rearers from Dhule district of Maharashtra, which is a well known rainfed district. The data were collected by survey method for the year 2003-04. Using stratified two stage random sampling method with a village as primary unit and sheep flock owners as a secondary sampling unit, the sample respondents were divided into three size groups, viz., small (possessing 8 to 20 sheep), medium (possessing 21 to 40 sheep) and large (possessing more than 40 sheep) for the purpose of analysis. Of the total sample sheep rearers, 68 per cent shepherds sold 61 kg wool in the village itself, while the rest was sold in the nearby markets. At the overall level, on an average per flock and per sheep sale of wool was 66 kg and 1.7 kg respectively. The gross return per flock was maximum in large size group. Marketing cost of one kilogram of wool worked out to Rs.3.40. Of the total cost, the labour charges alone had a major share followed by transportation cost, packing charges in the total marketing cost and other expenses such as weighing charges and market fee etc. The marketing cost per kilogram of wool declined, with increase in the size of flocks indicating economies of scale. A need is suggested to develop infrastructure and marketing facilities for the disposal of wool and that the wool may be brought under the orbit of regulated markets.

## Opportunities of Meat Trade in India with Special Reference to Pork in the North-East

**Subhasis Mandal†, K.K. Datta‡, Med Ram Verma† and A.K. Tripathi†**

The paper tries to highlight the issues relating to trade of pig meat with special reference to the north eastern states of India. The results revealed that even though the pork production system in India is categorised under unorganised sector and not having competitive advantage, however, possesses the advantage of low cost of production and perhaps can deliver results when pushed through the desired policy initiatives. But the real concern is inspite of having low cost production advantage, the Indian pork producer has several factors of cost disadvantages also like poor infrastructure, irregular power supply, internal freight and high transportation cost which accrue to the domestic producer. While framing the policies of liberalising the

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meat industry, it is essential to analyse these cost disadvantages carefully to safeguard the interest of the domestic producer. Pork has the substantial potential to grow and contribute positively to increase the trade balance of meat which in turn may be helpful to increase the well being of the underprivileged farmers. However, this sector needs appropriate policy attention both on supply side as well as demand side. While formulating the policies for the pig sector, it is essential to know the possible opportunity and threat to the livelihood of the resource poor farmers for external trading.

## Strategies to Enhance Poultry Production in India

**S.C. Srivastava*, H.P. Singh** and Chandra Sen****

Poultry occupies a crucial place in India, as the eggs and chicken meat provide important and rich sourcs of protein, vitamins and minerals. It provides rich organic manure and is an important source of income and employment to millions of farmers and other persons engaged in allied activities in the poultry industry. The paper has analysed the trade prospects of poultry industry and the scope and strategies for investments in Indian poultry industry. About 25 per cent of total egg production in the country comes from desi poultry, which is an unorganised rural backyard system. A target for achieving production of over 52 billion eggs by 2011-12, at a growth rate of 4.3 per cent has been visualised by the Government of India. With the annual production of 33 billion eggs, Indian is the fifth world's largest egg producing country. It also produces 530 million broilers per year. The private sector contributed significantly to produce high quality commercial breeding stocks, poultry equipment, compounded feed, health care products and disease diagnostic facilities. Good genetic stocks, equipment and machinery, medicines and vaccines and skilled man-power are available. There is a need to improve processing, preservation and marketing of eggs and poultry products. Regional imbalances with regard to poultry production as well as consumption of eggs and poultry products are prevalent in India. Poultry has a potential for producing value added products such as whole egg powder, albumen flakes, yolk powder, natural yellow pigment from yolk, lecithin, conalbumin and avidin from eggs used in pharmaceutical industry. Fiscal support is required from the Government of India in several aspects with a view to improve the domestic growth and export markets. They include freight subsidy and cash incentives for exports, more pressurised air cargo space, better handling facilities at airports and sea ports, subsidy on packaging material, lower interest rates and longer loan repayment terms by banks on infrastructure facilities created for exports and reduction of import duties on certain essential feed ingredients, life saving drugs

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vaccines, equipment and machinery for poultry processing and rendering hi-tech laboratory equipment etc. The quality of products has to be improved. There is considerable scope for investments in all aspects of poultry, namely, breeding, feeding etc., housing and management, health control and processing and marketing of products both for the domestic as well as export markets. The foreign research and development institutes need to collaborate with Indian counterparts to improve on the export front.

## Analytical Study of Marketing of Milk through Co-operatives in India

**Sushila Kaul**†

The study aims at examining the progress and perfomance of dairy co-operatives over a period of time. Regional variation in the progress of the movement and the causal factors that are responsible for differential progress of dairy co-operatives in various states have also been investigated. The findings of the study indicate that the co-operatives have done well in the western and northern parts of the country. The eastern region consisting of Assam and Sikkim have lagged behind. The causal factors for regional variation indicated that states having higher per capita income have better spread of co-operatives, so also with respect to the number of operational holdings in the states. This may be due to better roads and other transport infrastructure that have discouraged the formation of co-operatives because these enable farmers to dispose their produce individually. It is evident from the study that the co-operatives have emerged as a better option for organising distribution of milk in the rural areas. The future of dairy farmers lies in strengthening dairy co-operatives in those states which lack these facilities.

## Meat Exports from India: Current Trends, Constraints and Prospects

**Brahm Prakash*, D.K. Sharma* and D.S. Singh****

Considering the importance of meat and its processed products, the present study was undertaken to study the current trends of livestock population, meat production and export of meat from the country; to identify the major constraints responsible for slow growth of exports and to suggest measures to boost meat exports. The study revealed that meat production of the country which was 7.64 lakh tonnes in 1970-71 has increased to 5.74 million tonnes during 2002. Bovine meat contributes the lion's share of about 60 per cent to total meat production followed by meat of sheep and goat, pig, poultry and others. India is the major buffalo meat producing country of the

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world contributing 48.6 per cent to global production followed by Pakistan, China and Egypt. It ranks second in global goat meat production after China. However its share in the world exports of meat and meat preparations is not encouraging. The vast potential of the country's export potential could not be tapped due to prevalence of foot and mouth diseases, inadequate modern abattoirs facilities, lack of refrigerated trucks and cargo facility, difficulties in traceability and quality enforcement, negative propaganda, lack of pragmatic policy, low pace of modernisation and establishment of slaughter houses, lack of value added products, global competitiveness and lack of statistical base are some of the major constraints in boosting exports of meat and meat preparations. Indian meat has an edge in the global market due to enormous resources of raw material, competitiveness in price, cheap labour wages, proximity to importing countries, preference for Indian lean meat produced on natural grazing and liberalised economic policies. Integrated approaches with contract farming for quality animal production and processing facilities for better marketing with higher returns would be the sustaining and successful models.

## Export Marketing of Dairy Products: Problems and Perspectives

**S.S. Kalamkar**†

An attempt has been made in the paper to study the scope for export of dairy products in the light of economic liberalisation initiated by the Government of India in mid-1991. The importance of livestock in general and dairying in particular hardly needs emphasis in a country like India. Dairying is one of the important sub-sectors of agriculture, next only to field crops. India ranks first in the world in milk production. The growth rate of 4.5 per cent per annum in milk production in the country against the world average growth of 1.48 per cent, and its static growth in most milk producing countries indicates the potential of India to emerge as a major player in the export of milk products. At present, India remains a minor player in the international trade and export of dairy products is limited only to butter and ghee and negligible quantities of skimmed milk powder and whole milk powder. It is observed that the export of dairy products has increased significantly over last ten years. There are many comparative advantages for India in dairy products trade such as higher quantum of production and lower cost of production than many other countries. India enjoys comparative advantages over New Zealand, Australia and U.S.A. for producing milk at a lower cost. There is a need to improve the productivity of Indian livestock so as to make the products internationally competitive both on price and quality fronts for countering imports. However, the Indian dairy industry needs to be protected from this distorted and unfair trade competition. There is a need to re-negotiate the rates of duty for most of the dairy products keeping in view the trends

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of export subsidies and world prices. The main thrust should be on the improvement of animal health and adoption of sanitary and phyto-sanitary specifications for dairy products and brand image needs to be projected in leading international dairy trade fairs, particularly of those countries to which exports are being targeted. There is need to reduce the cost of handling of milk and processing by reducing intermediary agencies and by adding value to the produce and the quality of milk should meet the international standards, which can be improved through screening of the livestock against important diseases and maintaining clean surroundings in the dairy farm. Efforts need to be made to strengthen the farmers' associations to acquire new technologies, understand the milk marketing scenario at the international level and find suitable solutions. The future of the Indian dairy industry is promising and its growth potential is high as there is sufficient domestic demand and good scope for exports of milk and milk products.

## Trading Scenario of Livestock and Livestock Products

**Pradeep Hadke and Surendra R. Jichkar***

Livestock and dairying contributing 27 per cent to the gross domestic product from agriculture and allied activities, the livestock sector is the main source of family income in the arid and semi-arid regions of the country. In milk production, the country ranks first in the world, with the output touching around 100 million tonnes in 2006-07. Further India is expected to export 0.3 million tonnes of dairy products of the total milk and milk products. While India's share of world trade in poultry and poultry products continues to be very small, in the last decade, the value of such exports has increased from Rs. 11 crore in 1993-94 to Rs. 326 crore in 2005-06. However, about 75 per cent of the sector is under the control of the private sector. Fisheries sector plays an important role in the socio-economic development of the country. There has been steady growth in the export of fish products, during 2004-05, the country exported 4.37 lakh tonnes of marine products, which resulted in export earnings of Rs. 6189. Efforts are being made to boost the export potential through diversification of products for export. For the purpose of the development of livestock and livestock products the following steps should be undertaken: (i) National Policy for farmers which include the asset reforms covering land, water, livestock, and bio-resources, farmer-friendly support services, covering extension, training and knowledge, connectivity, credit and insurance. Curriculum reforms in agriculture universities. (ii) Livestock are self-sustaining capital investments, since replacements may be bred and reared within the flock or herd. For the poor, lacking the necessary finance, paucity or credit facilities is a serious constraint. Credit-in-kind may alleviate the problem. (iii) Successful implementation and spread of

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innovations in livestock production, requires an increase in human capital in the form of new knowledge of appropriate husbandry and management methods. (iv) Research in needed to describe and analyse the strengths and weaknesses of existing institutions and to propose and test alternatives for improvement where necessary. (v) Risk management with focus on market opportunities through value addition is required.

## Trade in Indian Livestock Products and Its Competitiveness

**S.S. Raju**†

The liberalisation process in India initiated in the early 1990s meant to give a boost to trade with removal of barriers between various countries. India being a signatory of "Dunkel Draft", opportunities were expected to be better to Indian agricultural exports including livestock products because of cheap labour in the country. In this context, the export earnings from various livestock products have been analysed in order to assess the impact of liberalisation on trade in livestock products and their competitiveness. In India, the important livestock products traded outside the country are dairy and poultry products, meat and meat products, wool and hair and leather and leather products. The results revealed that a significant change in exports earnings of various livestock products has taken place but the growth of trade over a decade does not seem to be significant. The non-removal of barriers to trade, phyto-sanitary standards and infrastructure bottlenecks have been presumed to be the reasons for not achieving the global competitiveness of livestock products. Besides, the non-commercial livestock production system that is in vogue in the country coupled with a vast domestic market appears to adversely influence the development of efficient livestock production that could compete globally. In order to take advantage of the expanding global market, Indian livestock products have to improve efficiency, safety and quality which are essential in the international market.

## Trade Practices of India in Livestock Sector Under Liberalised Regime: Threats Vs Opportunities

**Deepak Shah***

The paper attempts to assess not only the significance of livestock sector in the national economy but also examines the likely impact of trade liberalisation under WTO regime on the domestic market. It draws attention to various issues that needs

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to be addressed in order to save the Indian livestock sector in era of WTO regime in which the cattle in the rich countries are pampered at the cost of millions of farmers in the developing world. It is perceived that free world trade regime ushered in by the WTO not only poses many threats but also opens up many opportunities for the livestock sector of India. Imports trade of butter, ghee from cow milk, cheese and curd animal fats, etc. has come down sharply over the past two decades in the face of rise in export trade in the same. The trade balance of India is these products remains negative due to higher value associated with imports as against exports. India, therefore, faces significant threat in the case of import trade of some of the dairy products like butter, ghee, cheese and curd, animal fats and some other livestock based products like hides and skins. Further, consequent upon cheap imports and absence of adequate protection measures, safeguarding income and livelihood of poor farmers have emerged as issues that need to be addressed by policy makers. As for scope for the expansion of Indian dairy industry in the new liberalised trade regime is concerned, Indian dairy sector would be competitive only if the export subsidies on dairy products are abolished. In more relaxed market environment, the real challenge posed before Indian livestock sector would be in terms of Sanitary and Phytosanitary Measures (SPS), Agreement on Technical Barriers to Trade (TBT) and animal welfare related issues. With a view to meet these requirements - both domestically and in the world markets - modernisation of supply chain encompassing producer as well as consumer is the need of the hour. India is already price competitive in the world market and when subsidies from competitive producers like USA and EU countries are removed, the situation would make India more price competitive. In case India is not able to capture the world market in the event of removal of subsidies from the modern bloc countries, the other competitors like Australia and New Zealand would capture this market and enter in a big way to flood markets with their dairy products, making us lose our competitiveness and a great opportunity in the new trade regime.

## Economic Rationale and Marketing of Equine in Mountain Areas

**S.K. Chauhan and P.K. Dogra**†

An attempt has been made in the paper to analyse the cost and return structure of equine rearing, the marketing of equines and their services in the tourism sector of Himachal Pradesh, in order to provide basic information to the planners, policy makers and research institutions for the overall development of equine rearers. The findings of the study indicated that equine husbandry is mainly confined among the aged (41-60 years) and illiterate people belonging to scheduled castes, scheduled tribes and other backward classes, viz., chaudharies, labanas, weavers, Gaddis,

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Kinnauras, Lahaulas, etc. This activity was equally prevalent among economically weaker sections of other castes like Rajputs and Brahmans. In all, 175 human labour man-days per household per annum were utilised for the upkeep of equines and the total cost of rearing was to the tune of Rs. 39,378. Equine husbandry generated 200 man-days of employment and Rs. 47,974 revenue per household per annum to the sample households through carriage activities where the contribution of construction materials was as high as 60 per cent. In Shimla and Lahaul-Spiti district, equine rearers earned more than one-third of total revenue from tourism activities. Road links to the villages having modern means of transport were perceived to be the greatest threat to equine rearing activity. Besides, dislike for equine rearing by younger generations and non-availability of locally-bred mules were reported to be other major constraints in the equine development; the mules bred in plains took time in adaptation to hill environment and were found to be susceptible to various diseases. Spiti (Chamurthi) horses were found to be in short of their demand. Therefore, this enterprise need to be made popular through cheaper means of financial package and by providing good/suitable breeds to the hill conditions and environment among the unemployed youths of the poor strata of the societies as it offers scope in various walks of life including their enhanced role in off-season farming, tourism and mountain trekking in the hill economies.

## Economics of Milk Marketing in Chhattisgarh

**A.K. Gauraha***

The study aims to examine the economics of production and marketing of milk in Raipur district of Chhattisgarh. Thirty six commercial herds engaged in milk production of four villages and 27 herds from Raipur town were randomly selected for the study pertaining to the year 2004-05. The study concluded that the average number of milch animals per farm in terms of standard animal units was 10.52. The dairy herd size was found to be large in urban areas as compared to rural areas. The total cost of per milch animal per day was higher in urban areas as compared to rural areas. The feed and fodder accounted for a major portion of the total cost followed by human labour. Per litre cost of milk production worked out be Rs. 5.15 and Rs. 6.32 for corss bred cow and improved buffalo, respectively in urban areas, while it was observed to be Rs. 10.15, Rs. 5.46 and Rs. 6.31 for local cow, cross bred cow and improved buffalo, respectively in the rural areas, thus indicating that cross bred cow production was higher as compared to buffalo in both the areas. The benefit-cost ratio was higher for cross bred buffalo in urban areas as compared to rural areas. Lack of veterinary facilities, lower price of milk, high price of feed, lack of funds required to purchase feed and fodder for milch animals on the farms were the major

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constraints reported to be hindering the development of livestock enterprise in the rural areas while lack of green fodder, lack of appropriate place for dairy herds, high price of feed etc., were the major problems reported by farmers in urban areas. Thus efforts should be made to reduce the cost and to improve the productivity of milch animals. Strengthening of basic and the marketing infrastructure is also called for. This can be done by introducing high-yielding varieties of grasses, legumes and fodder crops in the farmers' field, replacing the local milch animal with improved breeds at a faster rate and encouraging the dairy farmers to organise co-operative society which should be allowed to process and distribute milk. Educating farmers on scientific management of superior milch bred animals and supplying standardised cattle feed regularly at cheaper rates at their doorstep would be necessary to improve the productivity of animals. The necessary infrastructural facilities like veterinary hospitals, transportation, etc., have to be created for the dairy enterprise.

## Structure and Working of Cattle Markets and Fairs in Chhattisgarh

**Bhag Chandra Jain and M.A. Khan†**

The present study aims to examine the structure and working of cattle markets and fairs in Chhattisgarh. The total geographical area of the state is 13.79 million hectares out of which about 6.3 million hectares (45.68 per cent) area is occupied by the forests. About 0.5 million hectare area is fallow and 0.85 million hectare comes under pastures in the state. The state has a large cattle population counting for more than 12.8 million, against 20 million human population. The total milk production in the state is only about 0.81 million tonnes, in this way only 100-105 gram milk per day per person is available in Chhattisgarh. This low productivity is mainly because of large proportion of indigenous low productive breeds. Many government as well as private sector agencies worked a lot for the breed improvement but the success rates of such programmes were very low. One of the major cause behind this situation is unorganised marketing and poor infrastructure availability specially for the cattle sector of the rural economy. The study revealed that the marketing system of cattle in Chhattisgarh is quite poor. It was found that cattle markets and fairs are mostly organised nearby Raipur, Durg, Bilaspur, Jagdalpur, Janjgir and Ambikapur districts during particular season on some notified days. On these occasions cattle are brought for sale from various distant locations of Madhya Pradesh, Haryana, Maharashtra, Andhra Pradesh, Orissa, Uttar Pradesh and Bihar states. In many cases the cattle seller have to cover a long distance on foot because of poor transportation facility and also due to high cost involved in sophisticated cattle transportation. It is also important to note here that despite several obstacles faced by the cattle sellers, a big chunk of the sale price is shared by the middlemen in the prevailing system of

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cattle marketing in Chhattisgarh. The study observed that in Tulsi-Baradera and Kharora cattle markets a commission of 2 and 1.5 per cent, respectively were charged from the sellers. About three-fourth of the respondents reported that the cattle are not available as per purchasers' choice. Half of the respondents reported the problem of drinking water at the fair site as well as the problem of credit. If such constraints be minimised then the marketing of cattle can be strengthened in Chhattisgarh that will help in improving the breed, as well as productivity of cattle in terms of milk and draft purposes.

## Meat Proposition in India: An Outlook

**Arjun Singh***

The objectives of the study are to examine the present status of livestock production and value of meat and the trends in export of meat and meat preparations and share of India in global market. Livestock production has gained significance due to multi products like milk, meat, eggs, wool, skins, hides and fur etc. The livestock sector is noticed as a big source of income and employment for small, marginal farmers and for deprived section of the society in both rural and urban areas. Due to declining availability of pulses and cereals per capita/day; pulses from 51.2 gms in 1951 to 37.5 gms in 1981 and 31.5 gms in 2005 and cereals recently from 495.4 gms in 1995 to 454.4 gms in 2000, 462.4 gms in 2004 and 422.4 gms in 2005, some other sources like meat, fish are required to compensate the diet in case of protein loss and food loss. The main constituents of livestock population were cattle and buffaloes which existed more than 61 per cent. The production of buffalo meat and beef and veal was found more than half of total meat production in India in 2003. The livestock sector added upto approximately 27 per cent gross domestic product to agriculture in 2005-06. Indian livestock products specially meat and meat preparations exports have risen at a very impressive annual growth of 14.7 per cent from 1995-96 to 2005-06. In the best fit of growth curve the value of $R^2$ was found 0.92 and in case of linear curve fit $R^2$ was 0.83 per cent both significant at 1 per cent level. Finally India is waiting for another revolution that is pink revolution, i.e., through buffalo meat after success of green, while and blue revolution. This could be achieved only through better scientific management at all levels and by reducing the mortality of male buffalo calves.

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## Trade Scenario of Cattle Fairs and Future Prospects of Livestock Markets in Uttar Pradesh

**Archana Shukla**†

In this paper an attempt has been made to estimate the supplementary and complementary nexus between crop sector and livestock sector that adds to the importance of rearing of various species of animals in the state Uttar Pradesh. The scarce farm resource base, particularly the kind of natural resources of land and water, makes the livestock based farm activities more pertinent in the state. The species and breeds prevalent in most parts of the state were evolved after generations of adaptability to local environment. The livestock data of Uttar Pradesh and the extent of its share in India reveal that the state has a pivotal role to play in developing the livestock economy of the country in general and that of the state in particular. The viability of livestock activity largely depends on an efficient marketing system and obviously this aspect has not been given adequate attention in the past. The extent of disposal and revenue from state level fairs shows location wise the number of animals assembled, arrived, sold, revenue collected and the sale value of animals sold in the state level cattle fairs in 2004-05. The Makanpur cattle fair at Araul (Kanpur) ranked first in terms of total arrivals and selling of animals. The proportion of animals sold to animals arrived in the state level melas shows the only 34 per cent of animals assembled could be disposed off through melas. Cattle constitute the large chunk of animals sharing 54.8 per cent of the total animals arrived and 63.6 per cent of the total animals sold. The other important animal species sold through cattle fairs are camel and buffalo which account for 29.7 per cent and 6.9 per cent respectively of total arrivals and 25.8 per cent and 7.4 per cent respectively of total sale of animals. The study suggests measures like the supply of technological inputs for breed improvement, feeding schedule and other management aspects are to be made more attractive in the state level cattle fairs so that the marketing system is more viable. For these breeders taking back the animals from mela sites in the event of not selling animals, incentive packages are to be devised. Goat marketing system is to be made more effective in view of its potential for milk and meat in the state.

## Milk and Milk Product Marketing in Western Uttar Pradesh

**A.K. Singh and Seema Joshi***

The paper has been drawn from the project "Livestock and Livestock Products Marketing in Western Uttar Pradesh". The study has been conducted in three

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districts taking into account the highest population of cattle buffaloes, poultry and small ruminant animals. Moradabad district was selected for the study of marketing of milk and milk products; taking into account the highest population of cattle and buffaloes in the district among all the districts in the region. In each block three villages have been selected randomly. Out of these selected villages, a total of 60 (21 small, 28 medium and 11 large farmers) sample milk producers were selected from two blocks of three villages pertaining to the year 2001-02. The sales pattern on various size of farms per month was estimated taking into consideration the actual sale to various agencies like milkmen, Halwai (khoya, maker), co-operative societies and direct consumers. It was observed that the small, medium and large farmers selling the milk to various agencies ranged between about 67 per cent to 90 per cent of total milk production in various months. The maximum sale of milk was recorded in the months of September to January. In summer season, the sale was also less due to low milk production though the demand for milk and its products remained high. The producers who sold their milk to milk man procured less price as compared to other marketing channels. The percentage share in consumer's rupee was higher if the producers were selling to the co-operative society and the consumers also had to pay less price if they purchased from the co-operative society. Thus, this channel is more efficient and facilities should be provided to the farmers so that they could sell their milk through co-operatives.

## Growth of Goat Population and Problems of Rearing Goat in Rajasthan

**C.P. Singh and J.D. Sharma†**

The present study seeks to study the growth of goat population over time and across the regions along with the problem in goat rearing. Secondary data were collected from published records of the state and central government and census data for 1956 to 1997 and were analysed. The results of the analysis shows that goats were found to be maximum (23.67 per cent) in the total livestock population in all the nine agro climatic zones of Rajasthan. The highest growth trend of goat population was observed in arid Western Plain (Zone I-A, 206.18 per cent) in 1997 as compared to 1956. The growth rate of small ruminants like goat has been more in the regions of Aravali hill tract. The growth pattern of goats in the region covering zone I-A and Sub-Humid Southern Plain and Aravali Hills (Zone IV-A) could be considered high growth regions and regions covering Transitional Plain of Inland drainage (zone-II-A) and Transitional Plain of Luni Basin (II-B) as moderate rate growth regions for the goat population. The temporal trend of growth population in each zone showed increasing-trend with some minor fluctuations during the years 1956 to 1983. The

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declining trend in goats during 1988 was attributed to acute drought in the year 1987 for the state. The decline in goat trend was observed during 1988 over 1983. The increase in goat density was more in the regions covered under Aravali ranges of hills as a result of improvement and formulation of the strategies of programmes for herd planning adopted by farmers as suggested by some NGO's and government departments such as BAIF (India), Animal Husbandry Department of state. Most of them faced problems in grazing their goats (63.70 per cent). The problem of veterinary facilities were found to be maximum in both for average and more than average size class of herd owners in equal proportions, i.e., 33.33 per cent in each. On an average 42.22 per cent goat rearers faced the problem in goat milk marketing. It was further observed that most of the goat rearers faced the problem of water and feed scarcity as a major problem, primarily in dry seasons. The extent of these problems increases in class size of herd. Finally goat rearing enterprises provide a regular flow of cash income to the households.

## A Study of Livestock Marketing in India

**S.P. Bhardwaj and Sanjeev Panwar***

High growth in the livestock sector in recent years indicates that if the sector is managed properly, it could be a driving force in the growth of agricultural sector in the coming decades. The economy is now poised for "Pink Revolution" which can not be far behind the other revolutions such as Green Revolution, White Revolution and Blue Revolution. Indian farmer is progressive. What he needs is the lead in the right direction. The contribution of buffalo in bringing about the White Revolution in India is well known. India is now poised to achieve the Pink Revolution through buffalo. If this could be done, India can also achieve the number one position in meat production. Marketing of livestock and livestock products, with few exceptions such as milk and eggs, is still to receive the attention of the planners and policy makers. The rural producers are mostly unorganised; scale of production is small and scattered. Marketing of livestock is associated with a unique set of conditions which makes it highly risky and laborious, besides prevalence of imperfection in the marketing mechanism. Marketing of livestock is mostly forced and under stress conditions**.** The supply of pink food or meat in the country in the year 1996 was about 1.6 million tonnes which increased to about 2.3 million tonnes in the year 2005-2006. Beef and buffalo remained the major species contributing about 25 per cent to the total supply. Poultry has also emerged a as dominating specie in the recent years and contributing around 29 per cent to the supply of pink food. The study of destinations of Indian buffalo meat revealed that most of the importing countries are developing or less developed. The study indicated that Indian pink food fails to enter the developed world so far.

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## Marketing of Milk and Milk Products of Jabalpur Sahkari Dugdh Sangh Maryadit Jabalpur in Katni District of Madhya Pradesh

**C.L. Thakur and S.M. Yadav†**

Based on a project entitled "Marketing of Milk and Milk Products of Jabalpur Sahkari Dugdh Sangh Maryadit, (JSDSM) in Katni district of Madhya Pradesh", the study tries to evaluate the marketing system practiced by JSDSM with a view to assess its efficiency and consumer satisfaction. The study shows that cattle raising is not only an important occupation for supplementing the nutritional diet to the people but also it has greater concern to uplift the socio-economic status of the people related to agricultural sector. Raising goats, cows, buffaloes and birds as supplementary occupation in the agricultural sector is apparently most economical for the development of socio-economical status of rural particularly in weaker sections, with small and marginal holdings or low investment capacity and tribal communities.

## Market Infrastructure for Livestock Marketing in Rajasthan

**S.S. Burark and R.L. Jogi***

The paper attempts to study the existing organisation and structure of animal fairs and animal exchange markets developed under Agricultural Development Project (ADP) in Rajasthan with the objective to study the functioning of animal exchange markets in terms of duration, location, number and type of animals brought in the market, market charges and amenities provided by the organisers. For achieving the objectives of the study, apart from mailed questionnaire to the organisers of all the 65 AEMs taken up for development under ADP, an indepth study of ten selected AEMs was undertaken. The observations based on the visit of mela sites were also recorded. These were supplemented with focused group discussions with animal sellers, buyers, local leaders, market functionaries and organisers. There are around 260 animal fairs held in the state, of these 10 are state level fairs. Most of the markets operate only once in a year. The duration of selected markets ranged from one week to one month. The organisers of the fair provide the necessary facilities at the fair site and collect fee such as entry fee and revanna. The buyers from outside the state are required to pay sales tax also which vary from fair to fair as these are fixed by the organisers. The present rate of sale tax is 5 per cent of the sale price of the animal subject to a minimum of Rs. 80 per animal. On an average 47.3 per cent of the total assembled

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animals were sold in the market with a maximum of 94.1 per cent in the Nokha market. The transaction in milch animals and small ruminants were almost negligible in the sample markets. Majority of the sellers belonged to the local area whereas the buyers belonged to the other states in most of the markets. Most of the buyers had their own means of transportation, i.e., local buyers carry the purchased animals on foot and buyers from the outskirts carry the animals on their trucks. The infrastructure created in the selected AEMs under ADP included small office room, store, water troughs and cattle loading platform. The study indicated that nothing had been done to construct cattle sheds and farmers' rest houses. The constructed units are so limited and small in size that do not fulfill the requirements of the organisers. Developmental work could be taken up in only 25 municipal level markets and 41 markets at panchayat samiti level under ADP project. Some of the measures suggested include further development of AEMs catering to the requirements of livestock marketing, providing minimum necessary amenities in the existing periodic animal exchange markets, providing the necessary infrastructural facilities in the animal marketing yards and the establishment of private market yards needs to be encouraged.

## Spatial Cointegration of Wholesale Egg Markets in India

**Sandeep Saran and L.S. Gangwar**†

The study attempts to examine the egg market performance through measurement of oneness of the egg markets. For the purpose, the Engle-Granger cointegration test procedure was applied to egg price series for major wholesale egg markets in the country, viz., Nammakal, Calcutta, Chennai, Bangalore, Delhi and Hyderabad for the period 1982 to 2000. The price data series were subjected to ADF test for testing the presence of unit root. Having established the condition of non-stationary and integrating relationships of the same order, i.e., I(1), for individual price series, the test of cointegration was applied. In the process, the prices in one market (non-stationary) were regressed upon prices (non-stationary) in the other market in a bivariate scheme and the residuals series, thus obtained was again subjected to ADF test for examining the presence of unit roots. The two markets were said to be cointegrated if the residual series did not have a unit root. The results of the study indicated that the six major whole egg markets in the country were cointegrated apparently due to performance of market intelligence functions by the National Egg Co-ordination Committee (NECC) which helped in transmitting price signals across the length and width of the country through print media on day-to-day basis. The high degree of cointegration amongst various markets indicates that these markets are competitive and efficient at the wholesale levels. However, it still remains to be

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examined whether the poultry farmers and traders at the grassroot level are able to realise the prices as declared by the NECC.

## An Economic Analysis of Marketing Efficiency of Milk in Puducherry Region in Union Territory of Puducherry

**J. Sadeesh*, A. Pouchepparadjou* and P. Lakshmanan****

The livestock sector plays a significant role in the welfare of rural population of India. Livestock sector accounted for 27 per cent of agricultural gross domestic product (GDP), and about 5.7 per cent of total GDP in 2004-05. Dairy farming is an important occupation, which is supporting a large number of resource poor families in Puducherry. The study was conducted in the Puducherry region of Union Territory of Puducherry. The sampling unit consisted of small and large farm milk producers, together constituting a sample size of 120 producers. The paper discusses the marketing efficiency of milk in the various channels of marketing and constraints faced by the farmers in the production of milk and its marketing. Institutions like co-operative societies play a major role in procuring milk from the farmers in Puducherry region. The reasonable price was the principal reason for marketing of milk by the farmers. It was found that the marketing efficiency was the highest in Channel IV consisting of cycle milk vendors due to its short length and higher efficiency index. But the net price received by the dairy farmers was found to be higher in Channel III involved with private agency and commission agent with Rs. 10.50 per litre. Among the various problems in milk production, high cost of feed was ranked as the major constraint faced by the farmers. The non-availability of storage facilities was the primary constraint faced by dairy farmers in the marketing of milk followed by non-availability of green fodder, lack of improved breed of milch animals, lack of information about various development programmes etc.

## Livestock Marketing Problems in Madhya Pradesh

**B.B. Beohar, P.K. Mishra and S.B. Nahatkar†**

The specific objectives of the study are (1) identify the various problems associated with the livestock marketing and (2) suggest policy reforms to overcome the problems identified for efficient livestock marketing system. Three agro-climatic zones, namely, Malva plateau, Central Narmada valley and Satpura plateau in Madhya Pradesh were selected purposively on the basis of livestock population.

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Three cattle markets, namely, Ujjain, Itarsi and Mohagaon were also selected purposively from the respective district on the basis of arrival and disposal of cattle. The data related to the year 2002. It is observed that out of three selected livestock markets, the maximum number of buyers visited Ujjain market followed by Itarsi and Mohagaon cattle markets. The sellers participation was also the highest in Ujjain market followed by Itarsi and Mohagaon. The number of intermediaries is directly associated with the strength of buyers and sellers visiting in the market. It is concluded that the buyers, sellers and intermediaries are the key elements and their strength in a particular market indicates the size of livestock market**.** Although the insurance facilities are available in the town where market is located but due to unawareness of the buyers, this facility is not availed by them, which reflected in the problems faced by all the buyers in the study area. It is concluded from the data that non- availability of credit, lack of funds, insurance facilities, marketing charges, involvement of intermediaries, non-cooperative role of local bodies and high animal prices were the major constraints reported by buyers of all the selected markets. The problem of unlicensed intermediaries also emerged as one of the problems in cattle marketing. The sellers in the animal markets generally came from nearby locality and after sale of animal during the day, they had to carry huge amount in cash because the transaction in the cattle markets takes place in the late hours of a day and thus sellers were not able to avail the facility of banks. Therefore, the banking working hours should be tuned with the market timings to avail banking facilities. Cattle shed is lacking in the market area. Cattle sheds are not available in any market, particularly on rainy days, it is a problem of sellers to keep their animals in a safest place. Non-availability of insurance schemes in the cattle market also creates problems and ultimately affect market efficiency. It was found that the sellers were not offered fair price for animals as expected. Poor production of crops, poor purchasing power, poor savings and poor capital for investment on animals were some of reasons which minimised the competition among buyers followed by other problems like feed/ fodder, drinking water, health services in the study area.

## Capitalising on Trade Prospects in Asian Markets for Exports of Indian Dairy Products

**Pralay Hazra, Smita Sirohi and Snehangshu Goswami***

The paper (i) examines the export trends of Indian dairy products in Asian markets in order to identify the prospective markets and products, (ii) analyses the import demand and relative price elasticity of Indian diary exports, and (iii) presents the short-term exports forecast in selected Asian countries. The anticipated rise in import demand for dairy products in Asia offers opportunities for Indian dairy

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industry to tap the buoyant Asian markets. From the analysis of export data of dairy products at HS-4 and 8 digit level (32 product lines) for the years 1991-2004, it emerged that more than 80 per cent of our dairy exports are directed towards the Asian countries. In recent years, Indian exports to Asian countries recorded an increase at the rate of 32 per cent and found now markets in South and East Asia and the Gulf Region. However, India is a minor player in Asian markets and exports are moderately to highly instable in most of the destinations and the export potential in the Indian sub-continent and Gulf region, still lies in traditional products. The short-term export forecast in important Asian markets for three product groups shows substantial increase in the potential exports from India. If competitiveness of Indian products remains unchanged (constant relative price ratio), the exports of our major product group, concentrated or sweetened milk and cream based products (HS-0402), will go up in Saudi Arabia, Oman, Nepal, Jordan and Singapore. The exports of butter and fat based products (HS 0405) and cheese and curd (HS 0406) are likely to increase in some of these markets even if the relative price ratio of our products vis-a-vis our competitors increases by 5 per cent. To capitalise on the trade prospects in Asia, the need of the hour is a comprehensive strategy for increased production of quality dairy products. The role of consistent trade policy is as important in reducing export instability. Frequent changes in the same, such as the recent Government decision to ban exports of skimmed milk power, whole milk powder and all other types of milk powder till end of September, acts as disincentive for entrepreneurs altering the planning horizon and discouraging investment. Hence, export promotion strategies need to be formulated with a thorough understanding of the market dynamics.

## A Study on Structure of Livestock Markets in Bundelkhand Region of Uttar Pradesh

**R.B. Singh and Sunil Kumar Verma**†

The study examines the structure of livestock markets in Bundelkhand region of Uttar Pradesh, their organisation set-up, degree of product differentiation, degree of exit of markets, market fee structure and the existing malpractices are analysed. The data were collected seasonally during 2005-06. The study reveals that the market-oriented economic policies of the country have brought into focus new issues, which were not very important or relevant in the past. The study shows that the livestock markets of Uttar Pradesh were largely controlled by the private sector. There was no organised machinery to control the trade for efficient and orderly marketing. It indicated that farmer-sellers were having little knowledge about market arrivals, prevalent market prices and other market information that ultimately limited the

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bargaining power of the farmers hence a provision should be made for announcement regarding arrivals, prices etc. There were wide differences in market fees across different markets and farmers were generally unaware about the prescribed fee. Hence, there is a need for transparency and rationalisation of the market fees. Brokers caused a lot of inconvenience both to the sellers as well as the buyers. In respect of product differentiation, it was observed that majority of the cattle were of local non-descript breeds. Massive cross breeding programmes could be initiated to introduce superior germplasm in the existing stock for evolving upgrade dairy or draft breeds. Hence the study suggests that price should be fixed arbitrarily, grading of the animals should be done on the attributes of the animals and price should be fixed based on grades. Lastly, the study suggests the need to regulate the livestock markets similar to foodgrains markets for smooth and effective marketing of animals.

**Marketing of Livestock through Cattle Fairs in Hisar (Haryana)**

**K.S. Suhag, S.K. Goyal and Jitender Bhatia***

The present study has been undertaken in Hisar circle comprising Hisar, Sirsa and Bhiwani districts of the state for the years 1990-91 to 2001-02. The specific objectives of the study are (i) To study the periodicity of cattle fairs, the cattle transactions, organisational structure, the conduct of cattle fairs and problems therein, and (ii) To examine the trends in income earned, expenditure incurred and total turnover from cattle fairs in Hisar circle. The study revealed that holding of cattle fairs in the State undoubtedly seems to be a sound prosposition as it contributed significantly towards the State income. The number of cattle fairs organised ranged from 24 to 48 and the total number of animals exchanged/sold in these fairs varied from about 21 to 41 thousand over the period of 12 years. Animal fairs are mainly held for draught animals like bullocks, camels and calves (male young stock of cows) which constituted more than 95 per cent of the total number of animals brought and sold in these fairs. The fluctuating trend in trading of draught animals exhibited a shift from draught power to mechanical power. Over the years, the total turnover as well as the revenue received by the Government from Hisar circle has slightly declined. But the expenditure incurred has increased considerably. It is suggested that for efficient functioning of livestock trading, it is necessary to create adequate infrastructure such as drinking water, medical, shelter facilities, etc. It is further suggested that for proper functioning of such fairs, provision should be made for exhibition of animals, co-operative stores in cattle fairs, publicity and creation of sufficient permanent space and structure for organising such fairs. To maintain law and order as well as to check malpractices at these cattle fairs the necessary security arrangements must also be made. A part of income generated through cattle fairs must be allocated for the development of cattle fair infrastructure in the State.

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## Structure, Regulatory Mechanism and Constraints in Skins and Hides in Chaurichaura Market of Eastern Uttar Pradesh

**J.P. Singh†**

An attempt has been made in the paper to examine the structure, regulatory mechanism and constraints in skins and hides in Chaurichaura market of Eastern Uttar Pradesh. The study is based on data collected from Gorakhpur district of eastern Uttar Pradesh with special reference to Chaurichaura skins and hides market. A sizeable number of butcher or small rural-urban trader/livestock breeder, local trader/skin hoarder, tanner's representative, etc., were interviewed pertaining to the agricultural year 2002-03. The study revealed that in Chaurichaura weekly markets are held where skin and hides are sold between butcher or small rural or urban traders and local merchant. In the market area middlemen are exclusively local merchant or hoarder of skins and hides who play an important role in buying, hoarding, treating raw skins and hides and finally disposing off to the tanner's agent/the tanner units. The most important marketing channel of skins and hides was identified, i.e., butcher/small rural/urban traders-local merchant/skin hoarder-tanner's representative or tanner. Most of the middlemen (local merchant hoarder of skins are hides) were operating without holding any license although enjoying a major share from the butcher or small rural or urban traders and making frequent bargaining from tanner's representative/tanner. The study suggests the need to initiate co-operative marketing societies of livestock breeders/butchers at the village level and initiate for treating finishing skins and hides and making agreement with the tanner units for regular supply over the year and establishing tanner units in Chaurichaura market area in order to minimise pollution by avoiding salt processing and treatment.

## Spatial Integration of Milk Markets in India

**Harvinder Singh and A.K. Jha***

Dairy is an integral part of Indian farming. Most of the milk producers are smallholders generating small surpluses. Unless the markets are integrated neither the producer nor the consumer will be benefited. This study has analysed market integration of five wholesale milk markets, viz., Chennai, Delhi, Kanpur, Kolkata and Mumbai applying Johansen's method of co-integration. Vector Error Correction Model was applied to see the short-run price adjustment process. Speeds of adjustment for reinstating equilibrium were also estimated. The results indicate that the milk markets of Delhi, Kanpur and Chennai hold weak exogenous relationship.

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This has a strong policy implication. These markets offer more stable and less risky milk markets and therefore provide cushion against external shocks and price volatility to the producers. The milk markets of Kolkata and Mumbai are critical to correct disequilibrium due to any exogenous shocks. They have strong bearing on the milk prices of Delhi, Kanpur and Chennai milk markets. Kolkata and Mumbai milk markets show relatively faster speed of adjustment suggesting that the long-run equilibrium will be restored more quickly if appropriate error correction measures are taken therein.

## Milk Procurement and Marketing in Pali District of Semi-Arid Rajasthan

**Khem Chand, B.L. Jangid and P.P. Rohilla**†

An attempt has been made in the paper to study the organisational set up, procurement and sale of milk and milk products by Pali District Milk Producers Co-operatives Union limited (PDMPCUL) in semi-arid Rajasthan. Data related to procurement and sale of milk and milk products were collected from different published reports of the union and through personal interviews with its officials in the district. Pali district produces about 2, 35,000 tonnes of milk per year, which accounted for 3.15 per cent of state's milk production in 2000-01. Private dairies, milk vendors and co-operative dairy are the major agencies involved in procurement and sale of milk. PDMPCUL plays an important role in the dairy development of the district by procuring 32 per cent (69,000 litres of milk per day) of the milk sold in the district through its 450 primary village co-operative societies. Besides its main processing plants at district headquarter Pali, the union has two chilling centres at Jaitaran and Falna to maintain the quality of milk collected from distant places. Thus Pali dairy has played a vital role in ensuring proper price to the farmers for sale of milk. Due to better milk price and assured returns from dairy enterprise, farmers of this region are replacing low productive cattle with higher milk producing buffaloes in this area. Pali dairy has helped in assuring better price for the milk supplied and also by running a number of welfare schemes for members which has enhanced the living standards of the farmers in this region.

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## Marketing Efficiency of Goats for Meat in Uttar Pradesh

**Babu Singh, Rakesh Kumar Singh and Bhupendra Kumar***

Livestock is an integral part of the agricultural production system in India and plays an important role in national economy as well as socio-economic development of million of rural households. The study reveals that the producer received the maximum share of consumer's rupee in Channel I (64.52 per cent), followed by Channel II (61.30 per cent), Channel III (59.85 per cent) and Channel IV (56.33 per cent). The highest share in Channel I, was because of the existence of only one intermediary, i.e., retailer between producer and consumer. The producer's share was the lowest in Channel IV due to long chain of middlemen where village trader, wholesaler and retailer was added before goats are moved from producer to consumer in the form of meat hides and skin was also observed higher at distant places, i.e., at Kanpur market compared to local to Etawah. Amongst the marketing functionaries, retailers got the maximum margin of profit varying from 31.64 per cent to 35.00 per cent in the price paid by consumer in different marketing channels. Since retailers happened to be the processors, the supply of ultimate finished product, i.e., meat to the consumers and hides and skin to the tanneries has got no relation with the price paid for goods and price obtained for the meat and hides and skin received after slaughtering. The margin of profit obtained by village trade in Channel II and Channel IV was Rs. 50 per male goat (4.03 and 3.52 per cent respectively) while those of whole sale it was Rs. 50 (3.52 per cent) each in Channel III and IV. From the foregoing discussion it may be concluded that the producers get a lower share in the price paid by the consumer for meat and hides and skin. This was due to presence of long chain of middlemen and higher margin of profit charged by them. The situation of secondary wholesale market at a long distance, lack of transport facilities accompanied by high marketing charges, the producers preferred to sell their goats to village traders or retailer directly at low prices. All these resulted in lower share to the producers. So there is need for an organised marketing system for selling of goats and its meat for ensuring remunerative prices to the producers. Regulation of goat markets may solve this problem.

## An Enquiry into Production and Marketing of Broiler Meat: A Study in West Bengal

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The study seeks to examine the production process and market costs and margin of broiler enterprise with the following objectives: (i) to analyse the production

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process of broiler meat, (ii) to estimate production and marketing cost and (iii) to work out the market spreads in different channels of marketing of broiler meat. Data of 60 broiler farms were analysed to examine the production while data collected from 5 wholesale and 15 retail dealers of broiler meat were analysed to estimate the market margin and market efficiency. In the study area, contract farming system was found to operate in the production of broiler meat. The big hatcheries are the main integrators, who usually supply poultry inputs and medical services to the growers and the growers provide land, shed, labour, and maintenance. Production and market risks are the main problems of broiler production. The contract farming is instrumental for development of poultry enterprise, but production and price risks often act adversely on production, income and returns from broiler farming. So, government and integrating hatcheries should take positive steps to control these risks and ensure perfect/proper marketing of broiler meat.

**Production and Marketing of Milk in Raipur District of Chhattisgarh: An Economic Analysis**

**K.N.S. Banafar***

The study aims to examine the production and marketing of milk in Raipur district of Chhattisgarh. A multistage random sample technique was used to select the district, block, village and dairy units. Out of fourteen blocks of Raipur district two blocks, namely, Dharsiwa and Arang were selected for the study on the basis of maximum number of dairy units. Nineteen dairy herds were finally selected for the present study. The data pertains to the year 2004-2005. The study concluded that the average number of buffaloes and its calves for dairy unit were found 10.63, 24.89 and 64.48 per cent of small, medium and large size groups, respectively. The total cost (operational and fixed cost) of milk production increases as size group increases, whereas the net profit follows the increasing trend with respect to size. The major portion of total cost is covered by operational cost in all the size groups. On an average, the feed cost per animal per day was observed to be Rs. 46.88 and Rs. 18.87 in dairy unit, respectively. There were four marketing channels prevailing in the study area: Channel I – Producer – Consumer, Channel II – Producer – Milk Vendor – Consumer, Channel III – Producer – Retailers – Consumer and Channel IV – Producer – Co-operative – Retailer – Consumer. There exists a tendency on the part of the milk producers to sell their produce to co-operatives (Channel IV), though they are aware that their share in consumer's rupee is high in Channel I (Milk producer – Consumer). It can be concluded that diary enterprises are economically viable in Raipur district. The study suggests that milk producers must be encouraged by providing remunerative price through milk co-operative by providing bonus. Milk

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should be processed at village level in the form of ghee, paneer, curd, etc., which provide higher benefits as compared to direct selling of milk.

## Marketing System of Private Milk Collection and Distribution Agencies in Lucknow City of Uttar Pradesh

**Jitendra Singh, Hargovind Bhargava and Raj Kishor†**

The main objectives of the paper are: (1) to examine the system of collection, transportation, packaging, weighing/measurement, classification, grading, standardisation and quality control of milk followed by various collection and distribution agencies, (2) to study the production, marketable surplus and supply pattern of milk on different categories of dairymen in urban and urban periphery of Lucknow, Uttar Pradesh, and (3) to anlayse the marketing charges, purchase and sale price of different kinds of milk of various collection and distribution agencies. The study was conducted on 60 dairymen randomly selected from the urban and urban periphery of Lucknow who produced milk on commercial basis and 60 randomly selected milk vendors (dudhiyas) who were involved in supply system of milk in Lucknow city directly to consumers or through milk markets during the agricultural year 2006-07. For this purpose 60 dairymen of urban periphery and 60 milk venders were personally interviewed by researchers and their response recorded in questionnaire. The results indicated that whole milk supply of Lucknow city by private milk collection and distribution agencies is dependent on dairymen of urban and urban periphery areas who were directly involved in production and distribution of milk and on the other milk collection and distribution agencies. The collection of milk done by these collection and distribution agencies from rural areas of the district and other districts with the help of iron made milk containers by traditional types own convenience. The distribution of liquid milk by private milk distribution agencies on retail basis to the consumers were supplied in loose form without any packing with 1000 ml, 500 ml and 250 ml measurements which were not in standard size. The milk supplied by private milk distribution agencies were not found in any classified forms. No kind of standardisation, grading and quality control of milk was followed by the above agencies in the existing marketing system. The sources of arrival of liquid milk in the milk markets were through small, medium and large dairymen of urban, urban periphery and rural areas and milk venders. The average herd size of milch animals of dairymen was found to be 14.05 animals/dairymen in the urban periphery of Lucknow city which varied from 8.67 milch animals/dairymen to 26.88 milch animals/dairymen on different categories The dairymen reported that the average

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milk yield of crossbred cows came to the highest of 9.71 litres/day/milch animal followed by buffaloes and cows to 7.02 and 3.70 litres/day/milch animal, respectively. The average annual total milk production in urban and urban periphery worked out to 30823.46 litres/ dairymen/annum which included the highest being 77.79 per cent contribution of buffaloes milk to total milk production followed by crossbred and improved indigenous cows contributing 17.91 and 4.31 per cent, respectively. It is interesting to note that most of the dairymen were interested in the supply of milk directly to consumers due to regular assured supply of milk at higher prices for longer period resulting in better returns than that of other milk supply channels. Except transportation charges no other charges were paid by collection and distribution agencies for milk marketing within the boundary of milk markets or outside markets. The average purchase price of buffalo milk was found to be higher in comparison to indigenous and crossbred cows due to the presence of higher fat per cent in buffalo milk than that of others. The average purchase price different kinds of milk varied from Rs 11.00 /litre to Rs 16.00 /litre and sale price varied from Rs 11.00 /litre to Rs 22.50 /litre in various seasons depending upon market demand and supply of milk in the market. The study suggests measures to improve the collection, containers, transportation, packaging, weighing/measurement, classification, grading, standardisation and quality control system of milk for various milk collection and distribution agencies. The existing marketing system of milk by private agencies is not found satisfactory due to prevailing of various irregularities in the system.

## Price Spread and Efficiency of Milk Marketing in Udaipur District of Rajasthan

**D.C. Pant, P.S. Rao and Hari Singh***

The study was conducted in Udaipur district of Rajasthan with the objective to estimate the price spread in milk marketing and the marketing efficiency of different marketing channels. Girwa tehsil was purposively selected among all the tehsils of Udaipur district on the basis of highest cattle and buffalo population. In all 60 milk producers were selected from four milk-producing villages and data were collected for the year 2003-04. Four milk marketing channels were identified in the study area viz., channel I; Milk Producer-Consumer; Channel II: Milk Producer – Milk Vendor – Consumer; Channel III: Milk Producer – Halwai – Consumer; Channel IV: Milk Producer – Milk Vendor – Halwai – Consumer. The milk producer disposed off their milk only to the private agencies. The quantity of milk sold per day through these four identified channels were 148.03, 240.76, 208.63 and 102.18 litres, which accounted for 21.16, 34.41, 29.82 and 14.61 per cent of the total milk sold, respectively. Thus, it can be concluded that Channel II is the most important channel

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through which maximum number of milk producers (40 per cent) sold the maximum quantity of 34.41 per cent of total milk. Inter channel comparison reveals that the net price received by the milk producers were Rs. 10.90, 9.78, 11.17 and 9.89 per litre of milk accounting for 97.76, 77.80, 79.05 and 68.82 per cent of the total price paid by consumer in the channel I, II, III and IV respectively. The marketing cost incurred by the halwai was Rs. 0.97 and 0.90 per litre of milk accounting for 6.86 and 6.26 per cent of the consumer's rupee in channel III and IV, respectively. The net margin of halwai in channel III and IV was Rs. 1.66 and 1.24 per litre of milk accounting for 11.75 and 8.63 per cent of the consumer's rupee, respectively. The marketing cost and net margin of halwai was more in channel III compared to channel IV. Price spread was Rs. 0.25, 2.79, 2.96 and 4.48 per litre of milk accounting for 2.24, 22.20, 20.95 and 31.18 per cent of consumer's rupee in channel I, II, III and IV, respectively. The price spread both in absolute and percentage terms was maximum in channel IV where two middlemen were involved in marketing process of milk. Channel I was found most efficient channel (43.60) in milk marketing followed by channel III, II and IV.

## India's Dairy Sector – Current Scenario of Production and Trade

**Parminder Kaur, Arjinder Kaur† and Meenakshi Gupta‡**

The study attempts to examine (i) the growth performance of milk and milk products in India, (ii) performance of dairy sector trade in India and (iii) world performance in the production and trade of milk and milk products. India's status in dairying is characterised by the fact that the country has emerged as the largest milk producer in the world with a record production of 97 million tonnes in 2005-06. Livestock sector accounted for 24.91 per cent of agricultural gross domestic product (GDP) and about 4.72 per cent of total GDP in 2005-06, the share of dairying in the livestock sector being about 65 per cent indicating the significant role of dairying in the socio-economic status of the country. The overall dairy exports constituted about less than one per cent of total livestock products exported. Although India became the net exporter of milk and milk products for the year 2004-05, the chemical and microbiological quality of milk and milk products have yet to meet the stipulated international standards. A large network of quality control laboratories, uniform methods of analyses, adequate technical personnel to manage the quality assurance tasks and measures for sanitary and phyto-sanitary monitoring needs to be built up.

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# Economics, Marketing and Constraints of Milk Production in Progressive Dairy Farms

**Vijay K. Choudhary***

The paper attempts to study the economics, marketing and constraints for progressive dairy units in the semi-urban areas of Raipur district of Chhattisgarh. Specifically, it aims (i) to work out the economics of milk production in different size of dairy units, (ii) to estimate the marketing cost, market margin and price spread for different marketing channels and (iii) to identify the various constraints in milk production and marketing and to suggest measures for improvement. The study is based on data collected from 16 progressive dairy units in Arang block of Raipur district of Chhattisgarh during the year 2006-07. The analysis of dairy unit revealed that the average cost of milk production Cost A was Rs. 30055.16 per milch animal per annum in large dairy unit, Rs.20243.14 and Rs.26224.85 for small and medium dairy units, respectively. On an average net return of milk production was worked out to Rs. 16423.16 per milch animal per annum. The benefit-cost ratio in the production of milk varied from 1:1.60 to 1:1.91 in different categories of dairy unit. The average benefit-cost ratio is 1:1.60. The price – spread was estimated for three channels. The producer share in milk price was high in Channel – III (88.42 per cent). Total marketing cost incurred was lowest in Channel-I followed by Channel-II and III. The study also revealed that about 90 per cent of the total quantity of milk produced was sold and the remaining was consumed for home consumption. Thus production and marketing efforts need to be made to reduce the cost and to improve the productivity of milch animals. This can be done by replacing the unproductive milch animals and introducing the green fodder cultivation. The necessary infrastructure facilities like transportation and veterinary facilities need to be developed for the dairy unit in own or managed co-operative basis, so that it can be managed economically. The study suggested to sell their produce directly to the consumers through a private dairy milk counter in city areas, because of the advance payment received from the consumers. Thus the dairy entrepreneur need to regularise the supply according to the demand needs of milk. It is therefore, concluded that progressive diary unit are economically viable in the study area because of increasing demand for good quality of milk and through supply only by progressive dairy units.

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