



VOICE OF FRESHNESS



POULTRY IN INDIA: Moving from Live Bird to Processed Chicken

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**RIBS' revolutionizing the
Construction approach**

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EDITOR'S VOICE

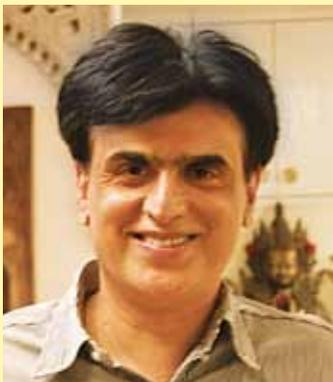
Cock a doodle doo!

I have always been a veggies lover but the non vegetarian cuisines always attracted me especially as I belonged to Old Delhi, much famous for its Kebabs and Tikkas. The all time favorites of my non vegetarian friends were Chicken Tikkas, Butter Chicken and Karhai Chicken. This connection and a recent interaction with the representatives of USAPEEC brought the idea to dedicate the issue to the poultry sector.

The poultry sector has seen a radical growth in the past few years. Along with being a rich source of protein, the poultry products are good in taste and less costly as compared to red meat, fish and sea food. The industry is largely dominated by live bird sales but processed poultry is rapidly catching up due to a number of reasons discussed in the articles in the magazine. The processed poultry is expanding on the demand of consumer preferences, trade and international standards.

The development and advancements in processed poultry is directly linked to the development of cold chain in the sector. Since the poultry products are too prone to damage and infection and have a smaller shelf life so cold chain becomes vital. There are only few major players in the market and mainly in the southern part of the country who have automated plants and good cold chain in place. However there are a number of players who have entered this segment and are working to build state of the art facilities in the country for processed chicken and their storage and transportation. The government has also come up with good schemes for the sector.

I would also like to thank Dr. Mark D. Newman, President and Mr Ashok Khosla, Senior Consultant, Market Solutions LLC for all their inputs and guidance to come up with the issue. Also I would like to thank all the poultry industry people both from India and abroad who have readily shared their ideas and views with us.



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This bi-monthly magazine showcases the cold chain and allied industries. We at ICE believe the primary objective of our industry is to enable freshness in supply chain and contribute to the country's growth by arresting wastage. We welcome all fresh ideas, write-ups and look forward to initiatives by the government and think-tanks for our industry.

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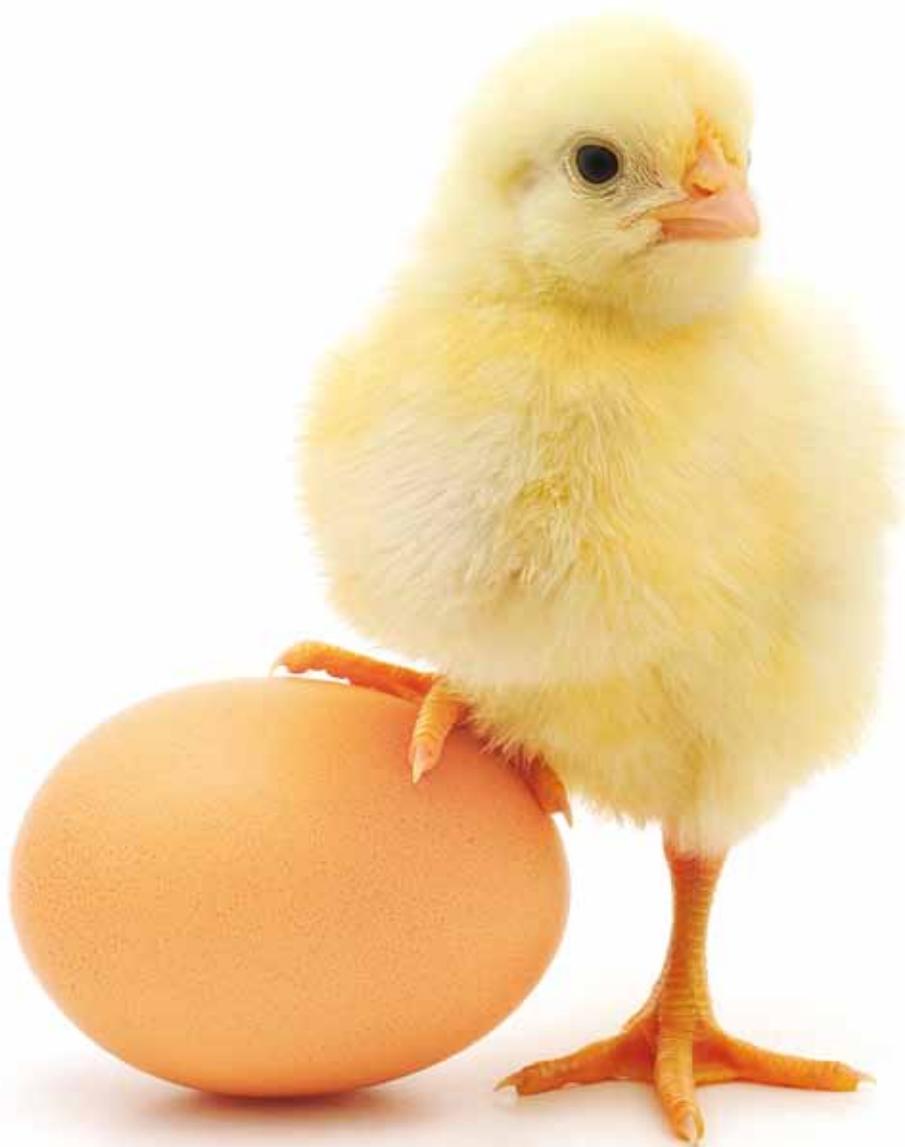
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Poultry in India: **Moving from Live Bird to** **Processed Chicken**



In 2011/12, the poultry production currently worth INR470bn (USD10.6bn) is expected to grow at a rate of 5.0% to reach 3.0mn tonnes. The output would increase by 29.6% to 3.6mn tonnes by 2015/16.

The poultry sector in India has undergone major shift in structure and operation during last two decades transforming from just a traditional activity into a major commercial activity with presence of large integrated players. This transformation involved investments in breeding, hatching, rearing and processing activities.

Since the 1970s, global production, consumption, and trade of poultry meat has grown faster than that of any other meat. During the 1990s, when demand growth slowed for other meats, including fish, demand growth for poultry meat accelerated and poultry continued to lead the expansion of meat trade. In 2011/12, the poultry production currently worth INR470bn (USD10.6bn) is expected to grow at a rate of 5.0% to reach 3.0mn tonnes. The output would increase by 29.6% to 3.6mn tonnes by 2015/16. This will be driven by infrastructure investments which will allow for greater numbers of poultry and cattle per farm, since the cost per unit will go down. Also the Indian per capita meat consumption has risen by 76% to 3.95kg/person from 1998 to 2010. Food and Agriculture Policy Research Institute (FAPRI) estimates that this could reach 4.1kg by 2015. Consumption growth will be largely driven by the spread of western style fast food restaurants or broadly speaking the QSRs (Quick service Restaurants).

The sector is also seeing interest from big players and awareness has risen to an extent where even the farmer cooperatives are coming together to introduce modern technology in the poultry industry. For example Big Dutchman, the EUR625mn (US\$823mn) German housing and feeding equipment company for poultry and swine industries, announced that it will be investing in a multi-million logistics center in India to support the poultry industry in India in meeting the burgeoning demand for the meat. Similarly, Innovative farmers in India had set up a portal in June 2010 to offer information on egg, broiler and feed prices. By December 2010, it already had 250,000 subscribers. Realizing the trend of farmers turning



to technology for previously hard-to-get information on things like prices, Nokia has also announced plans to expand its own OVI Life platform to cover agricultural information and education services for farmers. These increases in technology will improve information assimilation and increase efficiencies within the industry.

Despite all the greens the issues of transport and distribution of poultry within India, including limited demand for frozen products, a poor and high-cost transport infrastructure, and limited and unreliable cold chain, or frozen storage, facilities, are acting as impediments to poultry imports and may be as important as tariffs in constraining trade.

These constraints can be overcome by having an integrated system in place. Poultry sector integration, in turn, depends on the pace of transition from a live-bird market to a chilled/frozen-product market. Live-bird sales now dominate the market, preventing exploitation of regional comparative advantages in production, or the use of storage, domestic product movements, and international trade to stabilize supplies and prices. A shift to mechanical, and more hygienic, processing that would be an integral part of a transition to a chilled/frozen-product market may also have public health benefits. The industry expansion



will also depend on the pace at which integrated poultry operations spread in the West, East, and, particularly, the affluent North.

IMPORTANT CONSIDERATIONS REGARDING DEMAND OF POULTRY IN INDIA

Consumer preferences

In the past, chicken was considered to be a delicacy but with the strong gains in poultry production over the years, poultry prices are now lower than other meat prices and consumption among middle-class consumers is expanding rapidly. With Poultry meat is increasingly seen as less of a luxury product and more as a daily staple. Further with changing food habits and increasing exposure to global cuisines, population is increasingly converting to a non-vegetarian diet. Poultry meat is preferred over other meat products as it is considered more hygienic and is available year around throughout the country. All these factors have led to strong growth in broiler meat and table egg consumption in past few years.

Preferences for Dark and White Meat

Indian consumers prepare poultry in a variety of ways, the most popular being curries, kabobs, and tandoori (barbecue) dishes. Although these dishes are generally made with a mix of white and dark meat, industry sources

claim that Indian consumers have a preference for the dark meat portions. But given the price considerations where red meat is costlier, the consumption of white meat is higher.

• Seasonality in Demand

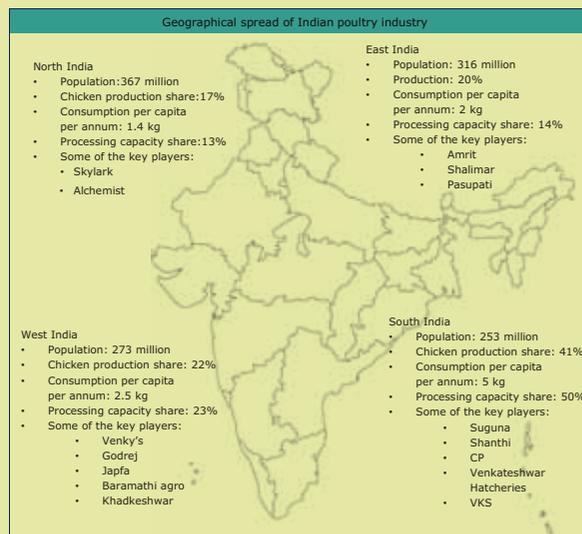
Perhaps the most significant impacts of religious practices on consumption of poultry and other meats in India are the strong seasonal patterns in demand in some regions. Seasonal religious observances can lead to significant fluctuations in demand. In some cases, religious practices prohibit meat for specified periods, and in others, celebrations and festivals lead to increases in meat demand. In the Mumbai region, religious observances significantly reduce poultry consumption for about 3 months of the year, although some festivals can lead to offsetting increases in demand. In Kolkata, on the other hand, an increase in poultry consumption is associated with the Durga Puja festival, and no significant seasonal downswings in consumption are reported. With limited frozen storage facilities or interregional movement of live birds, the seasonal swings in demand contribute to volatility in market prices of poultry meat in some regions.

Regional Demand Patterns

India's States and regions are diverse in terms of economic factors affecting food demand, including population,



Despite all the greens the issues of transport and distribution of poultry within India, including limited demand for frozen products, a poor and high-cost transport infrastructure, and limited and unreliable cold chain, or frozen storage, facilities, are acting as impediments to poultry imports and may be as important as tariffs in constraining trade.



Source: Industry estimates, Office of the Registrar General and Census Commissioner, India, Rabobank, 2012. From Wet Market to Processed Products

income, and urbanization. The northern and eastern regions account for the largest shares of India's population, but their income is comparatively lesser. High incomes and urbanization in the South are supportive of the region's rapid gains in poultry demand, supply, and commercialization. These factors also support the rapid growth now extant in the western region, particularly around the large Mumbai market. The northern region, where the poultry industry is not growing as rapidly as in the South or West, does, however, have areas of high income and urbanization, particularly in Delhi, Haryana, and Punjab, that can support growth in poultry demand and where poultry is growing eventually with some active players like Skylark Hatcheries and Alchemist.

• Live-Bird Preference

The Indian broiler sector operates almost completely as a live-bird market, with poultry retailed as live birds and slaughtered for customers in retail shops. This practice is in accordance both with the lack of cold chain facilities, which limits capacity to market chilled or frozen products, and with consumer preference. Consumers have more confidence in the quality of fresh poultry meat that is slaughtered in their presence; frozen or chilled meat may have problems that can only be detected when it is thawed.

MAJOR PLAYERS

Domestic poultry industry has few large scale integrated players like Venkateshwara Hatcheries (VH) group, Suguna Poultry Product Limited, Godrej Agrovet Limited, Charoen Pokphand (India) Private Limited, Arambagh Hatcheries Limited, etc having their own GP and parent breeding farms, hatcheries, feed mills, in house veterinary services, and marketing set up. The key players have also moved into vertical integration by setting up retail chains, processing, branding and aggressively marketing their products under frozen/chilled and ready to cook categories. While these large players have their own parent breeding farms, DOC breeding is usually done through contract farming model which is spread across country with farm sizes typically ranging in 2,000-10,000 of DOCs though there are few larger farms also. In the North we have Alchemist and Skylark hatcheries as the major players. Amrit, Shalimaar and Pashupati are the players in the east. Venkys, Godrej, Japfa, Baramathi Agro and Khadkeshwar are the players in the west. The Southern market is the seat of poultry with players like Suguna, Venkys, VKS, Shanthi and CP.

POULTRY PROCESSING

Traditional manual poultry processing still accounts for roughly 90 percent of all consumption in India leaving the share of processed poultry to be mere 5 percent.

The meat consumers are becoming more and more aware and demanding for meat and poultry products processed in clean and sanitary environment and “convenience items” such as semi cooked, ready-to-eat, ready-to-cooked meat food products.

The processed chicken market is expected to grow at a much stronger pace of more than 25% albeit on a low base. The traditional sector, as defined here, consists of manual dressing of birds, either in bulk by wholesalers or individually in retail shops. For eg the Ghazipur wholesale market near Delhi may have the largest such dressing facility in the country, manually dressing roughly 60,000 birds daily. A similar, though smaller, facility exists near the Crawford market in Mumbai and in other urban market areas around India.

The traditional poultry dressing “facilities,” whether at the wholesale or retail level, are completely manual, with no apparent sanitary measures taken for either the dressing floor or the workers. Although local health regulations exist, there is no evidence that any licensing or inspection regulations are effectively enforced. The Ghazipur facility near Delhi has no refrigeration facilities and dressed birds are stored in piles in the open until loaded into “refrigerated” vehicles for transport. Refrigeration for transport may consist of anything from a piece of ice on the back of a bicycle or scooter rickshaw to a mechanically refrigerated van. Refrigeration facilities for dressed birds do, however, exist in the Crawford market in Mumbai, as well as in higher end wholesale and retail markets in urban areas.

However, as per the industry sources, the modern poultry processing sector consists of 10- 12 firms that, altogether, process about 12,000 tons of poultry, or 1-2 percent of consumption, annually. The plants are all operated by poultry integrators and are located in or near major urban areas, including Mumbai, Calcutta, Hyderabad, Bangalore, and Coimbatore.

These firms operate semi- or fully automatic plants mostly using imported equipment. Generally the conditions in most of the plants appear quite hygienic, including monitoring of employee health, water supplies, sanitary conditions, and refrigeration facilities. The challenge for these facilities is marketing their products owing to limited consumer acceptance and marketing infrastructure for chilled and frozen products.

Processed Poultry: Market Dynamics

Processed chicken can be in two forms either as raw/deboned chicken sold in chilled/frozen form or it can be processed further to make ready to eat convenience food in form of nuggets/patties, etc. The market for processed chicken can be segmented into retail segment, QSRs and institutional clients in form of hospitality chains. As of now, QSRs and institutional clients contribute major proportion of sales with retail segment limited to wet market. Two major players in processed segment are VH group and Godrej Tyson Foods (previously part of Godrej Agrovet) who sell under brand name ‘Venkys’ and ‘Real Good chicken, Yummies’ respectively. Further players like Suguna, Aarambaug, Amrit group also have regional presence in processed chicken category. The value addition potential is strong in processed chicken industry with demand expected to shift from whole chicken to boneless chicken meat, portions and easy to cook/ready to eat products.

It is difficult to determine the exact size of the chilled bird market. Say for example as the industry estimates that the Ghazipur market near Delhi, the largest poultry market in India, provides about 40 percent of the birds consumed in Delhi, and about 60 percent of those birds are dressed in a nearby facility. The remainder of Delhi’s poultry demand is supplied by smaller markets, where a somewhat smaller share of birds is sold in dressed form. With these rough numbers, dressed, chilled birds may account for 25- 35 percent of consumption in Delhi, with most of this attributed to institutional customers. None of the other major urban centers has a large central market from which similar estimates can be taken. However, as per the industry, it is reasonable to assume that this share might be a little higher in such cities as Mumbai and Bangalore, where incomes are higher.

Opportunities in India for processed chicken

The live-bird market will likely continue to dominate in India for the next few years. Institutional demand for chilled and frozen birds will continue to expand, but movement by household consumers to chilled or



frozen products is likely to be slow. Chilled meat is more acceptable to consumers than frozen meat, and growth in consumption of chilled meat may help facilitate the transition toward a frozen bird market. Most of the poultry integrators in southern, western, and eastern India are already marketing dressed and chilled products and have plans to expand sales to both institutional and retail customers.

The meat consumers are becoming more and more aware and demanding for meat and poultry products processed in clean and sanitary environment and “convenience items” such as semi cooked, ready-to-eat, ready-to-cooked meat food products.

Current and future sources of growth in the institutional segment include hotels, restaurants, and fast food establishments, including McDonald’s, Pizza Hut, Dominos, and many indigenously developed fast food brands. In the retail segment, growth is likely to be fostered by the emergence of a number of new approaches by poultry integrators, including the establishment of integrator owned or franchised chilled/frozen poultry shops and sales counters in existing food shops, and home delivery services for chilled/frozen poultry products. The recent emergence of supermarkets, now mostly in southern India, is also likely to support growth in the retailing of chilled/frozen poultry.

The Ministry of Food Processing Industries is also implementing a scheme to improve the technology and modernize meat processing plants. Under this program, the National Meat and Poultry Processing Board will build 160 abattoirs around the country. Government has provided incentives like benefits under EPCG scheme for

processed chicken machinery and priority sector status to backend cold chain equipment manufacturers which provides added impetus to investments in this sector. Also processed chicken can also cater to large export market especially in Middle East segment where Brazil and China are the key players. The National Meat and Poultry Processing Board (NMPPB) set up by the Government of India in February, 2009 with the objectives of streamlining the meat and poultry processing industry is expected to give much required fillip to the processed chicken industry. The NMPPB plans to modernize abattoirs within five years by standardizing size, technologies, equipments and benchmarking and establishing a consultancy division.

ROBUST COLD CHAIN: HEART OF PROCESSED POULTRY

A lot of effort is required to change that attitude and consumer confidence has to be gained that dressed poultry is hygienic, healthy and from disease-free birds. Meat safety can only be guaranteed if every step in the meat production chain is carefully monitored and controlled. To stay current with these developments, today’s meat business is about improving profitability, efficiency, health, transparency and quality. Transition from a predominantly live bird/wet market to a chilled/frozen market is crucial for the future expansion of domestic poultry industry as well as to increase presence in international trade. So developing efficient distribution system with large investments required in cold chain infrastructure and increasing market acceptability of frozen chicken will be going to be the key industry driver in long term. ■

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Quick Serve Restaurant (QSR)

Growth Plans Accelerate Demand for Modern Poultry Processing and Cold Chain in India

India is poised at the crossroads of significant growth in consumption of food. Propelled by a doubling of per capita income over the past decade and sustained 8% growth, India's changing food habits are increasingly driven by higher incomes and improving affordability. Globally, as food habits undergo change, per capita poultry consumption serves an important benchmark for this growth. Poultry offers vast diversity of servings and styles, a skill that is perhaps most visible within the QSR sector.

India's poultry production has been growing at 10-20% annually for much of the last decade. Even with this growth, prices of meat, poultry and egg products have been increasing at double the overall rate of commodity price inflation, according to Reserve Bank of India data, suggesting that demand growth continues to outstrip supply. An estimated 90% of India's poultry is still shipped live, though sales of chilled and frozen poultry and processed poultry products have been seeing strong growth.

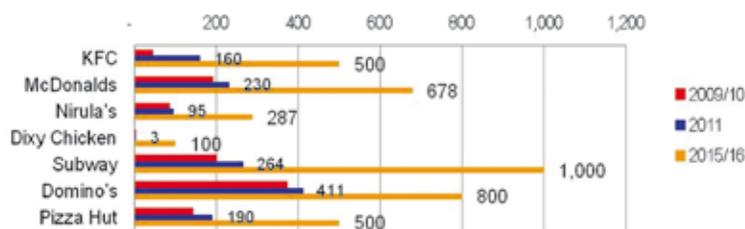
Efforts to ensure food safety and avoid transmission of avian influenza in many other countries worldwide have led to bans on street and mandi slaughter of poultry in other than hygienic facilities and a shift from sales of live to processed poultry as the norm. This requires major expansion of hygienic processing and the cold chain. As India sees bans on street slaughter in Delhi and some other cities, and expected new requirements with implementation of the 2011 Food Safety law, it is useful to consider how well prepared it is to meet a similar challenge.

One factor driving growing demand for processed poultry and many other food products requiring a reliable cold chain has been the rapid growth of Quick Service

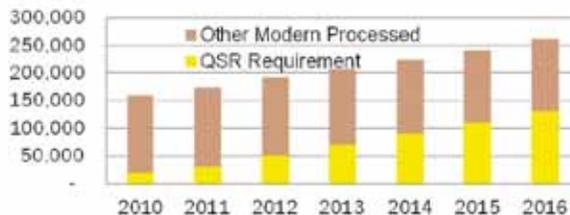


The expansion plans of QSRs do define and underline the parameters of an impending change, a vividly illuminated road ahead. This growth path will certainly require efficient food production, efficient food processing, efficient food service and efficient food serving to have to all come together to nourish and to sustain this food future for India.

Growth of Unit Numbers of Selected QSR Chains



Outlook for Modern Processed Poultry



Restaurant (QSR) chains across India. This includes international chains such as KFC and McDonalds, and also local chains. Recent successful growth in unit numbers and product volumes sold through QSR chains has led to announcements of major expansion plans by QSR chains over the next 3-5 years.

Expansion targets for some of the chains are shown in the accompanying chart. If successful, this is likely to contribute to wider availability of price competitive, nutritious and safe products from a variety of chains, and significant numbers of new jobs in QSR chains, but also a sharp increase in India's need for processed poultry and a stronger cold chain.

KFC has grown from 45 units in 2009 to 160 in 2011, with plans to have 500 units by 2015. McDonalds, which features a variety of poultry items and does not serve beef or pork in India, now has 230 units and plans to have 600 by 2015 and 1,000 by 2020.

Subway currently has 264 outlets and plans 1,000 by 2015 and 5,000 in 10 years, moving into smaller cities. Numerous other international QSR, family restaurant and pizza chains are growing in India and with them a variety of local chains featuring chicken and vegetarian dishes. Organized foodservice including hotels, restaurants and institutions is a \$1.7 billion industry and growing at 20%.

While India's poultry and egg production and processing industries have been growing very rapidly, expansion plans of the QSR chains depend on reliable supplies of competitively priced chicken parts and deboned meat that can meet their quality and safety standards. The major international and local Quick Serve Restaurant (QSR) chains saw their consumption of processed chicken meat increase 50% in 2011, requiring about 20% of modern hygienic primary processing capacity.

With QSR plans for rapid expansion, their processed poultry use could exceed current supply levels by 2016. At

Numerous other international QSR, family restaurant and pizza chains are growing in India and with them a variety of local chains featuring chicken and vegetarian dishes. Organized foodservice including hotels, restaurants and institutions is a \$1.7 billion industry and growing at 20%.

the same time, with more Indian consumers interested in purchases of hygienically slaughtered poultry from retailers, other foodservice channels and food processing, even this increase in modern processing may not be sufficient to meet demand.

The expansion plans of QSRs do define and underline the parameters of an impending change, a vividly illuminated road ahead. This growth path will certainly require efficient food production, efficient food processing, efficient food service and efficient food serving to have to all come together to nourish and to sustain this food future for India. ■

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NCCD Road Map

National Centre for Cold Chain Development has been established to function as The Nodal Agency for cold chain development with focus on **Integrated Cold Supply Chain Development**.

DECLARED AIMS & OBJECTIVES

1. To recommend standards and protocols for cold chain infrastructure/building including post harvest management so as to harmonize with international standards and best practices and suggest mechanism for benchmarking and certification of infrastructure/building, process and services provided by cold chain industry.
2. To suggest indicative guidelines for preparation of project reports for potential investors/entrepreneurs.
3. To assess and develop appropriate IT-based management information system for the cold chain infrastructure.
4. To undertake and coordinate Research and Development (R&D) work required for development of cold chain industry in consultation with stakeholders.
5. To undertake and coordinate the task of Human Resource Development (HRD) and capacity building. It may also conduct in-house training, short-term/long courses relevant for cold chain development.
6. To launch publicity campaign to educate the stakeholders including awareness building about the benefits of integrated cold chain.
7. To recommend appropriate policy framework relating to development of cold chain.
8. To facilitate and foster the development of multimodal transportation facilities for perishable agricultural, horticultural and allied commodities and establishment of National Green Grid Perishable Commodities.

Tasks as Declared

Tasks as Autonomous Body:

Direct Tasks Support Required

- Undertake Coordinate R&D
- Undertake Coordinate HRD
- Assess & Develop IT based management tools
- Launch Publicity Campaign
- Recommend Policy Framework
- Foster multimodal transport

Indirect Tasks Support Required

- Recommend Standards Coordination
- Suggest Guidelines for DPR Coordination
- Facilitate multimodal transport Coordination
- Awareness Programme Event Coordination



Suggestions from Roadmap Conclave

A. Regulatory Framework as Nodal Agency

1. Establish regulatory framework for Cold Chain infrastructure including capacity mapping and to confirm 'usable' capacity & availability nationwide.
2. Register all existing and future cold stores and reefer vehicles with NCCD. Future development to be regulated across areas instead of feeding over supply in some areas.
3. Establish as nodal controlling and regulatory body for developments across all sectors for schemes, subsidies, training and standards.
4. Provide recourse & address disputes arising in cold chain development work – industrial, operational and commercial.

B. Industry Intelligence from Nodal Agency

5. NCCD should work as information centre: where to take loans, what should be the interest, whom to approach. Open direct lines with other government arms to be single point interaction.
6. Create market intelligence-to lead towards guidelines on what are the areas to store, where to sell, what price etc.
7. Facilitate industry interest and participation in cold chain development by providing valid financial and industrial opportunity options to domestic and foreign interested parties.



C. Business Intelligence from Nodal Agency

8. Get experts & professionals on board to guide on making projects viable. Take on pilot projects to create case studies.
9. Educate user on cross utilization of facility and how to remain profitable in lean periods. Present case studies on challenges and mitigating options.
10. Assist ailing cold chain infrastructure by provision of improved business models. Promote commerce through built up infrastructure by policy intervention or guiding with new business modeling.

D. Operational Intelligence from Nodal Agency

11. Provide information or technology inputs to make project operationally efficient.
12. Manuals should be developed to set guidelines for best practises.
13. Develop contingency plans for crisis management and disaster management.
14. Multi-modal operational models to be developed for future growth in cold chain.
15. NCCD should be the storehouse of knowledge with respect to equipment, maintenance and refrigerated transport. International knowledge pool should be established to take care of the challenges and literature should be available which could be referred to while taking important decisions.

E. Cargo Intelligence from Nodal Agency

16. Provide information or cargo care specific to product types handled in cold chain.
17. Manuals should be developed to set guidelines for best practises for cargo management protocols.
18. NCCD should be the knowledge repository with respect to perishable produce handling in storage and transport and publish such handling protocols. Domestic knowledge pool should be established for various produce types and time criteria in liaison with international and domestic universities.
19. Specific solutions on product type, lane wise and region wise be taken up by NCCD to pilot.

F. Standards & Certification from Nodal Agency

20. We follow the standards and protocols of Europe or US. For Indian scenario, more indigenous/ customized / Indianised standards & protocols should be made by NCCD.
21. Such standards should specify contractor prequalification, project execution criteria, manpower deployment, basic layout and not only for equipment selection.
22. Standards should be in form of minimal guidelines so as to continue to allow forward innovation.
23. Certifying of service providers to allow service benchmarking and to promote service excellence – both in warehousing and transportation.
24. Basic standards to be monitored through compliance audit process by NCCD as nodal agency. Currently no operational certification and audit mechanism is in force. Such audits can be done in regulatory partnership with other agencies.
25. NCCD should address non-compliance in terms of contractual obligations, subsidy linked payments to contractors, cargo damage disputes, performance guarantee clauses, etc.
26. Create testing & validation labs and R&D centres related to cold chain development.

G. Awareness & Cross Pollination from Nodal Agency

27. Cross-pollinate & liaise with other industry organizations and associations. NCCD to hold out-reach programmes as in current formative stage is not seen to be active.
28. Establish direct communication with other government cells to present consolidated picture and effort for cold chain development. To function as nodal agency should facilitate as single window.
29. NCCD to heighten awareness levels across stakeholders including financial organisations. There is no clear awareness in public at large as well as financing sector on priority provided to cold chain.
30. NCCD to reinvigorate interest in cold chain as current market trend is dependant and disconnected from opportunity. This should be done through active presence across industry sectors.



31. Reopen membership & include missing stakeholders like transport & freight companies, packaging companies, research institutions, agriculture universities, farming associations, etc.

H. Skill Development from Nodal Agency

- 32. NCCD should develop & coordinate skill development curriculum and programmes.
- 33. Setting up of specialized vocational and operational training institutes.
- 34. Training not to be limited to engineering aspect but also handling and management of perishables.

I. Others

- 35. Environmental impact through energy consumption, waste disposal and mitigating aspects – Green design & energy saving options to be promoted for cold chain.
- 36. There was strong expression of the necessity as well as apprehension about sustaining NCCD in long term as the nodal agency.
- 37. Various tax and fiscal benefits were suggested during road map session (to be taken up separately).
- 38. Importance of fast tracking a Green Corridor by road as well as rail for Perishable movements.

Key take-away from Feedback

Demand expressed for a larger proactive role of NCCD

- To perform both as a Guiding body and as well as a Regulatory agency.
- To function as single window understanding across all cold chain development initiatives.
- To provide two way interface between infrastructure development and business development.
- To assess and indigenize published guidelines and to consolidate divergence in such guidelines.
- To standardise supply chain protocols and equipment utility and to monitor their implementation.
- To verify & monitor cold chain network and suitably recommend new development & additional capacity build accordingly.

- To provide business guidance & up-gradation opportunity to ailing cold chain projects.
- To publish guiding documents on policy, domain research, insights and business case studies.
- To bring nodal cohesiveness to capacity building and training across all segments of cold chain.
- To function as umbrella body in guiding various functional & perceptual concerns that limit growth & interest—in effect a facilitation and support mechanism across entire business chain.

Current Limitations

- NCCD was setup as a membership society with limited funds & membership.
- An extension of existing structural framework with key differentiation not established.
- Sourcing independent Professional domain experts’ participation to assist in fulfilling demands.
- Duplication of objectives with other government bodies limits expectations as nodal body.

Primary Action Items

Formation as Nodal Agency (NCCD)

1. Decide initial team strength & appoint Team.
Function requirements are suggested (in-house or out-sourced)-
 - Chief Advisory Officer as domain expert to support Director NCCD.
 - Domain experts for technical support for Quality Standards, Infrastructure, Packaging, Logistics, etc.
 - In-charge – Industry Coordination
 - In-charge – Engineering R&D
 - In-charge – Policy Formulation
 - In-charge – IT Development
 - In-charge – HRD and Training
 - Accounts Officer
 - Assistants/Functionaries (events, website, HRD activities).



- Analysts / Research
- Assign office & administration resources to team
2. Establish clear Lines of communication with other Apex departments in sectors-
 - Agriculture & Cooperation
 - Commerce & Industry
 - Communications & Information Technology
 - HRD - Education & Training
 - Energy & Power
 - Environment & Natural Resources
 - Food & Public Distribution
 - Transport & Infrastructure
 - Health & Family welfare
 - Information & Broadcasting
 - Science, Technology & Research

Present opportunity and impact of NCCD on national level. Additionally, seek functional Deputation/ Budgetary support from each.
 3. Membership in Working Groups/Steering Committees in
 - Innovation Council
 - Planning Commission (Agricultural Marketing Infrastructure and Policy, Skill Development & Vocational Training)
 - APEDA
 - NSDC

Advise and participate on policy and budgets at national level.
 4. Assimilate historical records for declared set of activities from other agencies/departments.

To Strengthen NCCD as a nodal agency.

(Keeping in mind existing by-laws of NCCD & limitation of resources)

5. All national level proposals: as a nodal agency, proposals related to cold chain shared with NCCD for assisted appraisal & record keeping. A nominal fees accordingly factored into subsidies/grants.

6. All new formulation to be recorded at nodal agency (NCCD) & for its recommendation, inter-alia:
 - a. Academic and capacity building related;
 - b. Policy on cold chain development;
 - c. Cold chain related technology induction; etc
7. R&D proposals related to refrigeration and cold chain technologies to be sponsored through NCCD as evaluated for suitability and field application. IIT's can be sourced to assist NCCD objectives.
8. Membership to be kept open indefinitely for any future participants and membership criteria ratified and to include other stakeholders.
9. Outsource research & consulting functions to panel of consultants.
10. Assign a Chief Advisory Officer for NCCD from industry (ex-officio member executive council):
 - a. Advisory Officer preferably a leader with established cross-domain expertise (Cold Chain management, logistics, shipping, rail and infrastructure development).
11. Additional funding arrangements may be required to meet all industry expectations from NCCD.
 - a. Shared deployment of budgeted funds through Agriculture Marketing, NHM, NHB, MoFPI, APEDA as NCCD would be directly supporting their existing initiatives and objectives.
 - b. Sourcing of funds from external agencies for funding research and training activities.

Year 1, Agenda & Targets:

Agenda:

1. Utilize available limited funds to first establish basic structure and administrative team.
2. Seek additional financial support through multi-donor agencies and government.
3. Establish NCCD as nodal government supported agency on all matters and communication related to cold chain development (infrastructure, logistics, practices, packaging, standards, protocols, IT & R&D).
4. Create & drive partnership with international bodies



in cold chain. Liaise & promote NCCD as a centre of excellence and medium of inclusive communication from local and international interests.

5. Launch website as initial communication and knowledge dissemination platform.
6. Commence to table and short list IT tools to be developed for cold chain management aimed at central record keeping of nationwide capacity utilization, status of cargoes at storage and network of cold chain transports.

Targets:

1. Create internal action groups through inviting industry participation for steering committees on various segments/sectors as per aims/objectives - to induce greater & long term participation.
2. Assimilation of records of common activities undertaken by other government agencies. In phased priority as follows:
 - a. HRD and capacity building.
 - b. Publicity and awareness campaigns.
 - c. Standards and Protocols.
 - d. Technical Assist Programs.
3. Implement directive that all initiatives and existing budgets assigned for declared set of activities be assigned to NCCD, or alternately be deployed through NCCD as nodal agency.
4. Hold monthly events to promote inclusive interactions with all kinds of stakeholders.
 - a. To evaluate response and impact of existing standards and protocols developed.
 - b. To seek consultation from stakeholders for future R&D work.
 - c. To seek possible course corrections or options suggested from stakeholders.
5. Seek approval to undertake at least one pilot project with intent to highlight challenges and the opportunities that NCCD is ready to showcase. This work can be undertaken with industry associations or with industry directly, aimed at:
 - Development of cold chain solutions for specific Produce types.

- Development of supply chain & logistics options to facilitate Green Corridor by road/rail.
 - Development of feasible cold chain routes in India.
6. Commence a publicity campaign – budget permitting.
 7. Raise basic repository of cold chain management information, scientific & technical, for public use.
 8. Commence interactions and funds permitting, induct IITs, agriculture universities or other pharma.... institutions for validation and testing labs, product wise R&D.
 9. Review private sector proposals & submissions seeking govt subsidies and revert with recommendations for future proposal guidelines.
 10. Introduce initially the concept of single window nodal agency for public interface and for cold chain proposals and policies, to be made effective with alignment of other ministries by end of year 2.
 11. Pilot an assessment of existing cold chain infrastructure and map for declared capacity, actual usability, equipment type, accessibility and condition, etc.

Year 2, Agenda:

1. Revisit budget status for surplus or limitations.
2. Revisit staff strength (on deputation or on hire) for next 3 years.
3. Review performance for Year 1.
4. Suggest revisions if any to existing standards and protocols.
5. Recommend additional standards and protocols related to cold chain.
6. Registration of cold storages and refrigerated trucks/vans/containers towards enablement of green corridor. Propose guidelines for green corridor for perishable cargos.
7. Commence and evaluate R&D trials.
8. Undertake and promote on its own or in collaboration with national and international agencies, commercial exploitation of technologies.
9. Recommend indicative guidelines to streamline new project reports for potential investors.



10. Invite a panel of arbitrators to allow NCCD to serve as arbiter in case of cold chain disputes.
 11. Continue concerted publicity campaign, extending same to foreign territories.
 12. Increase sectorial participation in cold chain development from missing segments.
 13. Propagate policy highlights and recommendations to prospective businesses.
 14. Publish a series of books and other literature highlighting growth, and overall development of cold chain in India.
- G. Regularly collaborate or undertake pilot projects and coordinate similar efforts from other agencies, with aim to establish successful models or ratify mis-conceptions on cold chain efficacy.
 - H. Promote trade routes or technologies with proven commercial benefits basis guiding protocols.
 - I. Develop options for Green Grid for perishables on long hauls, including multi-modality options.
 - J. Through industry interactions provide updates and new policy intervention options to council.
 - K. Build long term platform to serve as monitoring and regulatory arm for government and as the dispute resolution body for cold chain industry.

Charting a Direction

- A. Team Building – with focus on creating a differentiating environment for a developing sector that is seen to be fragmented and disjointed.
- B. Market Development – focus on marketing infrastructure as well as developing market interest for agricultural produce through innovative support interventions. Seek developmental synergy with other cold chain sectors including pharma, meats & seafood, processed foods and others.
- C. Standards and Guidelines – alleviate claims that imported standards are being enforced by promoting more as guidelines and allowing alternative options. Standards to be guided more by environmental safety and personal safety aspects, with technology options as project guidelines.
- D. Public Interface – keep in touch with stake holders and interested parties, instead of them having to reach out to authorities. Basis demonstrated demand, build information repository.
- E. Create collaborations with established external agencies and promote development of Indian universities and other R&D institutes. Be perceived as partner in developing knowledge repository.
- F. Coordinate and guide feasibility & market studies on cold chain as deployed by existing bodies to. Most studies conducted, available to interested players are suggested to have uncoordinated & disparate data. NCCD to be seen as central source for industry intelligence in cold chain arena.

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The Poultry Federation of India

Views on need of cold chain in the sector

Absence of cold chain is a big hurdle in the expansion of poultry business. The concept of cold chain is a little new to India. Additionally, energy shortage throughout the country make it still more difficult, as cost escalations shall be high with cold chain.

India is traditionally a 'wet market'. Over 90 percent of broilers are sold as live and dressed manually. With the increase in incomes, consumers are becoming more conscious and now prefer poultry meat dressed and sold under better hygienic conditions. Due to higher costs involved with processing and to government taxes, the growth of India's processed poultry business may not be hugely significant in next 1-2 years. The processed poultry market will, nonetheless, keep growing, but whole chicken will have the main share of the market.

Absence of cold chain is a big hurdle in the expansion of poultry business. The concept of cold chain is a little new to India. Additionally, energy shortage throughout the country make it still more difficult, as cost escalations shall be high with cold chain. Despite this trend, the industry is putting a lot of effort in processed chicken operations as this market is growing as consumers are slowly starting to be interested in more value-added and perhaps westernized products. Big poultry companies are ready to develop cold chains and meet consumers demand for 'dressed chicken'

Government of India is working on the process to standardize food quality, upgrade poultry processing technology, check for chemical residues and bacteria and produce meats responding to international market norms. In the present decade (2011-2020) the dressed chicken market is likely to account for 20-25 percent of the total broiler market. ■



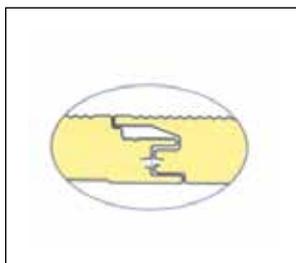
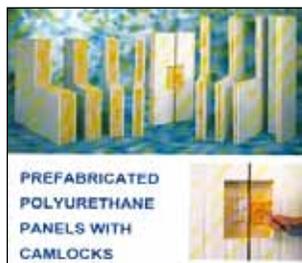
*Ricky Thaper
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Email: ricky.thaper@gmail.com*

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- Transit cold storage/ storage facility.
- Cold storage/ CA storage/ ULO storage.
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- Refrigerated transport system.
- Refrigerated railway wagons, cargo containers.
- Refrigerated retail outlets.



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Poultry in Brazil

A majority of poultry processing in Brazil takes place near to the main production areas and which minimizes the risk of disease. These processing plants turn out a large range of poultry meat including broiler meat, semi and fully processed products. The entire poultry chain in Brazil is therefore critically dependant on an end to end frozen cold chain with strict inbuilt systems and controls to protect and preserve food-safe integrity.

According to current FAO estimates, Brazil accounts for 11.5% of global broiler poultry production and is the third largest producer country. Brazil is the world's largest exporter of broiler meat with a 31.7% market share. Poultry production in Brazil is concentrated in the thinly populated regions of Central & Southern Brazil which grow corn and oilseeds, the major ingredients for poultry feed. Though quite distant from major consumption in urban areas and coastal ports, the remote regions are conducive to disease free production of poultry including the dreaded Avian Influenza

which, at one point of time or another, has hit almost every poultry producing nation globally.

A majority of poultry processing in Brazil takes place near to the main production areas and which minimizes the risk of disease. These processing plants turn out a large range of poultry meat including broiler meat, semi and fully processed products. The entire poultry chain in Brazil is therefore critically dependant on an end to end frozen cold chain with strict inbuilt systems and controls to protect and preserve food-safe integrity. As the world's largest exporter, an effective frozen cold chain is a key essentiality to securing and servicing such markets. The stature of Brazil's poultry would not have reached such prominence had this vibrant frozen cold chain not existed or had lacked fail-safe efficiency.

The breakdown of poultry products exported from Brazil is as follows:

38% - frozen whole chicken

52% - frozen portions and cuts

5.5% - salted chicken

4.5% - industrialized products

Brazil's extremely competitive chicken meat supply chain is built on solid foundations: privileged natural resources; an abundance of fertile land and water; natural illumination from sunlight; cheap and plentiful natural ration from corn and soybean; poultry farms close to slaughterhouses; and poultry technology developed through 40 years of investment in research, rigorous sanitary conditions that resulted in not even a single case registered of the dangerous and highly pathogenic avian influenza that struck several countries. Brazil's poultry production tells this story – against poultry meat production of 5.98 million tonnes in 2000,



production in 2010 was an impressive 12.23 million tonnes.

Brazil's poultry sector ensures a permanent supply of high quality chicken meat to over 150 countries. This guarantee of supply represents a solid commitment to the international trade fraternity and has taken Brazil to be the world's largest exporter of poultry since 2004. Brazilian agribusiness supplies more than 75% of European chicken meat imports. During the past decade, the averaged cost of production in Brazil is 8% below that in the USA and a huge 60% below production costs in the EU. The Middle East region alone now accounts for 37.6% of the total volume of chicken meat exported by Brazil. This meat is processed strictly to Islamic rules for Halal production. This is testimony to the enormous attention paid by Brazilian Chicken Producers and Exporters Association, ABEP to meeting the special needs of consumers in the Middle East Region.

What does the future hold for Brazil poultry?

According to the UN FAO report titled How to Feed the World in 2050, the world will depend on international trade to ensure food security in coming years. Production of food for this intensified trade will certainly require more land & water to grow both food and feed crops. Brazil today has the world's largest amount

Brazil's poultry sector ensures a permanent supply of high quality chicken meat to over 150 countries. This guarantee of supply represents a solid commitment to the international trade fraternity and has taken Brazil to be the world's largest exporter of poultry since 2004.

of potential arable land to engage with agriculture. At an estimated 300 million hectares, this unused land is equal to the sum of such oils in Russia and the United States combined. Brazil has more than 8,000 cubic kilometers of renewable water per year, far more than any other country. ■

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RIBS' revolutionizing the Construction approach

**EPS based Pre fabricated reinforced Insulated Panel
for the Construction of Cold Storage**



RIBS is a joint venture company between Reliance Industries Limited (RIL) & Syntheon Inc. (Nova Chemicals, U.S.A.), to produce pre fabricated, re-inforced, insulated panels that gets integrated into conventional construction system.

Reliance Innovative Building Solutions Pvt. Ltd. (RIBS) is an ISO 9001:2008 & ISO 14001:2004 certified company that was established in 2008 with a mission to service the growing need for sustainable, greener, building products. RIBS at its Faridabad plant is manufacturing pre fabricated EPS (Expanded Polystyrene) Panels & utilizes state-of-the-art fabrication equipment to produce a broad array of steel reinforced insulated panels for residential & commercial building applications. It is an emerging building solution company that has brought green structures to India using patented PLASTBAU technology from Plastedil Italy.

RIBS is a joint venture company between Reliance Industries Limited (RIL) & Syntheon Inc. (Nova Chemicals, U.S.A.), to produce pre fabricated, re-inforced, insulated panels that gets integrated into conventional construction system.

The various products that are manufactured by RIBS are:

Metal/Standard Deck Form (MDF/ SDF), Curtain/Partition Wall Panel (CWP/PWP), Reinforced Concrete Wall Form (RCF), Structural Insulated Panel (SIP) & In wall Assembly Panels.

MDF/SDF

MDF/ SDF are structural insulated floor & deck forms manufactured with stay-in-place concrete using FR grade EPS & Galvanised Steel inserts.

PWP/CWP

PWP/ CWP drywalls are insulated, steel reinforced panels manufactured using FR grade EPS & Galvanised



Gains from RIBCORE Technology:

- Substantial saving of construction time resulting in early business
- Reduced concrete & steel consumption
- Light weight structures that reduces floor weight
- Superior seismic, thermal & acoustic properties
- Eco-friendly & contributes to energy efficiencies

steel inserts, suitable for internal walls replacing conventional 115 mm & other drywall systems. Curtain walls with higher thickness between 120-200 mm are suitable for external walls.

RCF

RCF are thermal insulated steel reinforced wall shuttering element made with two slabs of EPS with a reinforcing metal cage in between. It can also be used as load bearing wall.

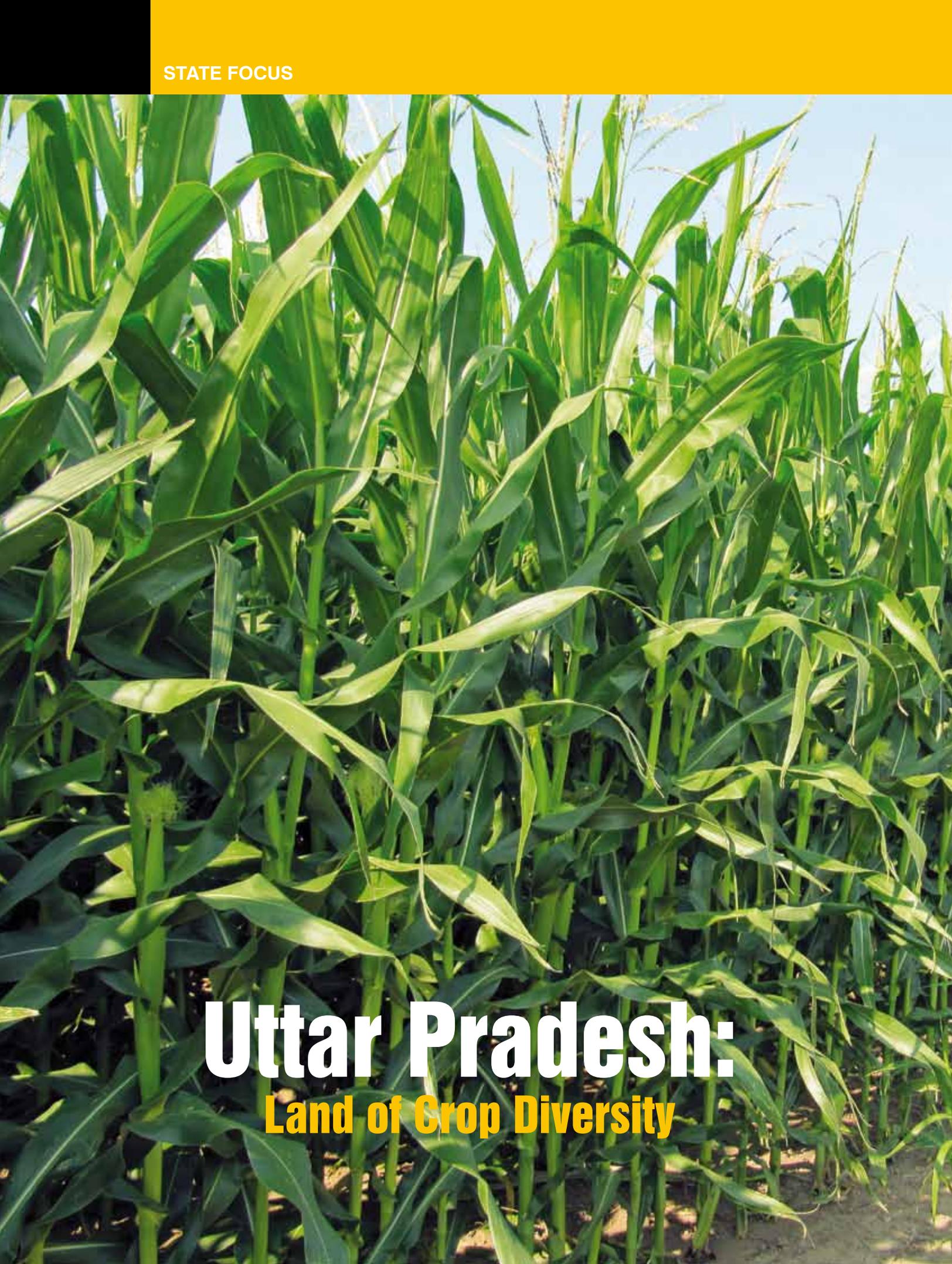
The advanced technology of RIBS Steel reinforced EPS panels, are suitable for constructing warehouses, cold storages, commercial & residential buildings etc., a whole lot faster & efficient manner. All innovations are motivated towards great concern for the environment. Capital & Operating expenses can also be reduced using the RIBS technology through in - built insulation properties of EPS.

COLD CHAIN INFRASTRUCTURE

RIBS component are most suitable for cold storage applications with following advantages :

- It requires lesser refrigeration & utility cost
- Light weight structures leads to Earthquake resistance.
- Heat insulation EPS layers preventing thermal bridges

We design, develop and manufacture Intelligent Systems that provide economical, dependable, long lasting and highly evolved customized solutions for Cold Chain Industry. ■

A vibrant, close-up photograph of a cornfield. The corn plants are tall and healthy, with bright green leaves and visible tassels at the top. The background shows a clear, light blue sky. The overall scene is bright and sunny, suggesting a healthy agricultural environment.

Uttar Pradesh:

Land of Crop Diversity

The state is well established for the export of rice, mangoes, vegetables and potatoes. The state has set up as many 485 fruits and vegetable processing units. Uttar Pradesh has implemented “e-Choupal” model to tackle the challenges faced by the sector through delivering of valued service to the customers.

Uttar Pradesh is the fourth largest State of India. In sheer magnitude it is half of the area of France, three times of Portugal, four times of Ireland, seven times of Switzerland, ten times of Belgium and a little bigger than England.

The total geographical area of Uttar Pradesh is 29.44 million hectare and the area under forest 1657023 hectare. The cultivable area is 24170403 hectare (82.1% of total geographical area) and the net area sown is 16573478 hectare (68.5% of cultivable area). The gross cropped area is 25.415 million hectare and the area sown more than once is 8.841 million hectare with the cropping intensity of 153.54 %. The net irrigated area is 13.313 million hectare (By canals- 25.18 %, by tube wells- 66.94% and by others – 7.88%). The gross irrigated area is 19.218 million hectare and the percentage of net irrigated sown area is 80.3%. The total number of land holdings is 224.57 lakhs out of which 175.07 lakh (78.0%) are marginal farmers, 31.03 lakh (13.8%) small farmers and 18.47 lakh (8.22%) farmers hold land above 2 hectare.

The climate varies from moderately temperate in the Himalayan region to tropical monsoon in the central plains and southern upland regions. Rainfall in the state ranges from 40-80 inches (1,000-2,000 millimeters) in the east to 24-40 inches in the west. Uttar Pradesh, on the basis of rainfall and soil has been divided into nine agro-climatic zones (Ghos, 1991). The agro-climatic zones are given below-

1. Central Plain
2. South Western Semi Arid
3. Bundelkhand
4. Eastern Plain
5. North Eastern Plain
6. Vindhyan
7. Bharbhar & Tarai
8. Western Plain
9. Mid Western Plain



Agriculture and Crops grown

Agriculture employs about two thirds of the work force and contributes about one third of the State income. Agriculture in the State showed dynamism during the seventies and the eighties in the wake of the green revolution.

The state is well established for the export of rice, mangoes, vegetables and potatoes. The state has set up as many 485 fruits and vegetable processing units. Uttar Pradesh has implemented “e-Choupal” model to tackle the challenges faced by the sector through delivering of valued service to the customers. The state has allocated an amount of Rs. 4496 crore for agriculture and allied activities in the annual budget of FY2012, which is 8.9% more than the allocation made in FY2011. Uttar Pradesh is also one of the major agri-exporting states in the country. The average yield of major crops in the State are considerably lower than those in the agriculturally developed States like Punjab and Haryana. A number

The area production and productivity of horticulture crop has considerably increased as the state and central Govt. have paid focused attention towards these crops. More income per unit area and employment generation in short span of time have attracted the enterprising farmers of the state which resulted in diversification towards horticulture crops.

of factors are responsible for low productivity and slow growth of agriculture in the State the most important factor being the very small size of holdings in the State.

Uttar Pradesh stands at first position at all India level in terms of food grain production. The state's food grain production has increased from around 43 million tonnes in FY2001 to around 47 million tonnes in FY2011. Rice, maize, pigeon pea, moong bean crops are common in kharif season. In post-rainy (rabi) season wheat, lentil, Bengal gram, pea, and sesame and at some places groundnut is grown on residual soil moisture with one or two supplemental irrigation. The important cash crops of the region are sugarcane, potato, tobacco, chillies, turmeric and coriander with supplemental irrigation. Rice-wheat cropping system is more predominant. Horticulture in UP

Horticulture crops cover a wide variety of fruits, vegetables, tuber crops, mushrooms, floriculture, medicinal and aromatic plants, spices, food processing and bee keeping. U.P.'s varied agro-climate permits growing of a large number of these crops throughout the year enabling their availability on a regular basis. U.P. holds vast potential for the development of horticulture.

Horticulture has emerged as one of the major agricultural activities as there has been a substantial increase both in area and production of horticulture crops. Horticulture crops have the inherent advantage of providing higher productivity per unit area of land as compared to other crops, resulting in higher income and employment generation in rural areas. Fruits and vegetables have been shown to earn 20-30 times more foreign exchange per unit area than cereals due to higher yields and higher prices available in the national/international markets.

One important trend observed in the last five years is that horticulture development has gradually moved out of its rural confines into urban areas and from traditional agricultural enterprise to the corporate sector. This trend has led to the adoption of improved technology, greater commercialization and professionalism in the management of production and marketing of different horticulture crops. As a result, we today witness a perceptible change in the concept of horticulture development in the State. The area production and productivity of horticulture crop has considerably increased as the state and central Govt. have paid focused attention towards these crops. More income per unit area and employment generation in short span of time have attracted the enterprising farmers of the state which resulted in diversification towards horticulture crops. These crops have proved to be the boon to the small and marginal farmers of the state who accounts for more than 90% holding of the State. Nearly 70% of the population is dependent on agriculture.

National horticulture mission in the state

With the inception of National Horticulture Mission scheme since 2005-06, the horticulture potential of the state is being explored and benefit harnessed by the farmers by getting more income per unit area, consumer by getting these crops round the year for consumption on affordable price, entrepreneurs/processors by having more raw material for value addition and unemployed youth by getting more employment through forward and backward

Share of Uttar Pradesh in India's food grain production (% share)

0	FY2001- FY2002
5	FY2003 - FY2004
10	FY2005- FY2006
15	FY2007 -FY2008
20	FY2009 -FY2010
25	FY2011

Source: PHD Research Bureau, compiled from RBI, Ministry of Agriculture



Summary of agro statistics

Agriculture* GSDP at Constant prices (FY2011)	Rs 82046Crore
Agricultural* sector's contribution in GSDP (FY 2011)	20.9%
Food Grain production (FY2011)	47243.7 (Thousand Tonnes)
State's contribution to national food grain production (FY2011)	19.55%
State's rank in national food grains production (FY2011)	1st
Sugarcane production (FY2011)	120555 (Thousand Tonnes)
State's contribution to national sugarcane production (FY2011)	35.5%
State's rank in national sugarcane production (FY2011)	1st
Yield food grains (FY2010)	2260 (kg/hectare)
Net area irrigated –(FY2008)	131 (Lakh Hectare)
Net area Sown –(FY2008)	164 (Lakh Hectare)
Population dependent on agriculture	Two third
Rice Production (FY2011)	12014 (Thousand Tonnes)
Wheat Production (FY2011)	30001 (Thousand Tonnes)
Coarse Cereals (FY2011)	3217 (Thousand Tonnes)
Pulses (FY2011)	2012 (Thousand Tonnes)
Oil Seeds (FY2011)	911 (Thousand Tonnes)

Source: PHD Research Bureau, Compiled from RBI, Ministry of Agriculture, Directorate of Economics & Statistics, Government of Uttar Pradesh, Various policy papers of Uttar Pradesh government, Note: The figures are presented as round offs*includes Animal Husbandry

linkages. In short, the advent of NHM in the State have explored the commercial aspect of the horticultural crops and this has resulted in commercialization of these crops to the fore.

Objectives

The main objectives of the Mission are:

- i) To provide holistic growth of the horticulture sector through an area based regionally differentiated strategies which include research, technology promotion, extension, post harvest management, processing and marketing, in consonance with comparative advantage of each State/region and its diverse agro-climatic feature;
- ii) To enhance horticulture production, improve nutritional security and income support to farm households;
- iii) To establish convergence and synergy among multiple on-going and planned programmes for horticulture development;
- iv) To promote, develop and disseminate technologies, through a seamless blend of traditional wisdom and modern scientific knowledge;
- v) To create opportunities for employment generation for skilled and unskilled persons, especially unemployed youth.

NHM strategy

To achieve the above objectives, the mission would adopt the following strategies:

- i) Ensure an end-to-end holistic approach covering production, post harvest management, processing and marketing to assure appropriate returns to growers/producers;
- ii) Promote R&D technologies for production, post-harvest management and processing;
- iii) Enhance acreage, coverage, and productivity through:
 - (a) Diversification, from traditional crops to plantations, orchards, flower and vegetable gardens;
 - (b) Extension of appropriate technology to the farmers for high-tech horticulture cultivation and precision farming.
- iv) Assist setting up post harvest facilities such as pack house, ripening chamber, cold storages, Controlled Atmosphere (CA) storages etc, processing units for value addition and marketing infrastructure;
- v) Adopt a coordinated approach and promotion of partnership, convergence and synergy among R&D, processing and marketing agencies in public as well

as private sectors, at the National, Regional, State and sub-State levels;

- vi) Where appropriate and feasible, promote National Dairy Development Board (NDDB) model of cooperatives to ensure support and adequate returns to farmers;
- vii) Promote capacity-building and Human Resource Development at all levels.

Uttar Pradesh had been the leader in agriculture and allied sector since ages and National Horticulture Mission, Uttar Pradesh aspires to further establish the superiority and quality of all the horticulture crops. {Source:Strategy & Road Map for 2010-11 G:\AAP-Mission-2010-11\StrategyRoad Map.doc 3 }

Food Processing Policy of the state

The state government announced its policy for food processing industry in 2004 which focuses on providing better returns to farmers, facilitating investment, employment generation, minimizing wastage of agriculture and horticulture produces, making provision for appropriate linkages between agriculture and industrial sectors and creating a conducive environment for undertaking fruitful business ventures.

Some of the key incentives provided by the state are mentioned below:

- Encouragement to exports of processed food, inputs used in production of exporting food commodities are exempted from the payment of tax/cess/duty.
- Electricity duty will be exempted for 5 years
- Provision of IT tools for collecting, analyzing and disseminating data with regards to production and markets
- Provision for interest free loan entitled to units with an investment of Rs. 5 crore or more.

Biotechnology in the state

- Lucknow is known as the biotechnology city of India and has established Biotechnology Research Park at Lucknow.
- Single window facility and relaxation of taxes on biotechnology based products.
- 100% relaxation on registration fee and stamp duty for biotech units.
- Uninterrupted power supply for biotech units with a capital investment of more than Rs. 10 crore



Case Study: Emergence of Agra as the cold storage hub

Agra may be famous for its monuments, but it also holds 7% of India's cold storage capacity - more than in the whole of Punjab. Or more than the combined cold storage capacity of Madhya Pradesh, Maharashtra and Karnataka put together. Almost all of it is used to store potatoes.

Agra now has a cold storage capacity of around 2.2 million tonnes, according to the Agra Cold Storage Owners Association (ACSOA).

Till the '80s and '90s, Agra was an industrial city with hundreds of small-scale units and foundries which produced metal castings. But by the late '80s, the industry was in a state of decline and industrialists began exploring new areas - the expansion in potato farming around Agra district and the demand for storage capacity meant that setting up such storages was one such investment opportunity.

But veterans of the business remember that the real take-off of the cold storage industry in the area occurred in mid-'90s, due broadly to four reasons.

In December 1996, the Supreme Court passed an order requiring that polluting units in the historic city be closed, if they didn't switch to cleaner fuel. This accelerated the decline of the foundries in and around the area. Then

in 1997, in her short six-month stint as chief minister of Uttar Pradesh, Mayawati removed the controls on the rent that cold storage owners could charge farmers to store produce.

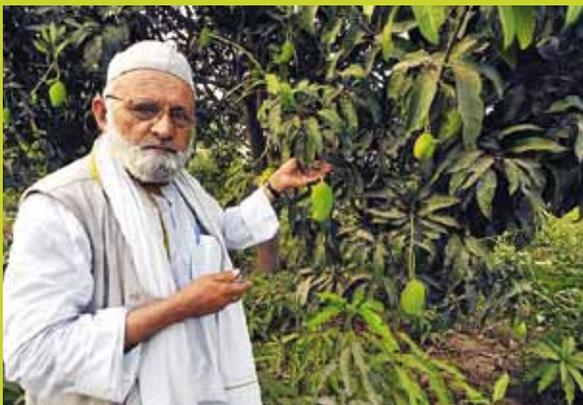
Till this time, banks did not fund cold storages, and didn't see them as viable, but this removal of the cap on cold storage rental rates instantly made cold storages more attractive to finance.

The third trigger at the time was another bumper crop in 1997, coupled with a major lack of capacity. Over 40% of the crop rotted in the open. Many industrialists sensed an opportunity and entered the business. There was a huge boom in cold storages in the area, in just one year.

In 1999 a further fillip came in the form of central subsidies, following the infamous onion price boom, widely seen as having brought down the BJP government in Delhi in elections that year. An entrepreneur can now get as much as 50% of the cost of plant and machinery to set up a cold storage as subsidy from the government.

The potato crop in Agra and across the north comes in around February to March, and goes into cold storages till October - a period of eight months. It is around the beginning of February that banks open their funding window for the trade by providing cash credit, not to the farmer, but to the cold storage owner.

But by the late '80s, the industry was in a state of decline and industrialists began exploring new areas - the expansion in potato farming around Agra district and the demand for storage capacity meant that setting up such storages was one such investment opportunity.



The Mango Man of UP

Haji Kalimullah Khan in Malihabad (Lucknow, India) is also, very aptly, called 'Mango Man'. The Padma Shri awardee for his rare technique of growing more than 300 varieties of mangoes of different shapes, sizes and hues on one tree. The tree is about 100 years old on which he started work in 1987 to develop the craft of growing different varieties on one tree. He has named the mangoes on this particular tree after his family members who also were mango growers. The names are as fascinating as the mangoes themselves: the heart-shaped Asl-ul-Muqarrar, the bright red Husn-e-Ara, the bitter gourd-like Karela, Kelwachampa, Sharbati Bagrain, Pukhraj, Walajah Pasand, Khas-ul-Khas, Makkhan, Shyam Sunder, Prince, Himsagar...they are all there.

They typically finance about 25-40% of the price of a 50-kg sack of potatoes (the standard unit in which prices are quoted). So if the price at harvest time is Rs 200 per 50-kg sack, banks could give a loan of about Rs 70 per bag, repayable by the end of the year. Banks reportedly finance over Rs 400 crore worth of cash credit in Agra district alone.

In a year when production booms (such as 2011), when there is a big oversupply of potatoes well in excess of total capacity, cold storage owners have the upper hand at the beginning of the harvest season and can get away with paying lower advances or charging higher rents, or both since supply is greater than storage capacity. In a year when production declines (like 2012), it's the farmers who have the upper hand.

Conclusion:

Uttar Pradesh is poised for a high growth in coming years. The state has been able to pull huge investments in the recent years due to favorable government policies. The state aims to promote Public Private Partnership to boost infrastructure, industrial and social development. During coming years, the planning of horticulture development in a holistic manner by identifying the critical gap in infrastructure, well knitting the linkages of production to harvesting, processing to value addition and exports to achieve the objectives of National Horticulture Mission in the state and country at large will surely lead the state to greater heights. ■

*ICE Bureau, GCCA India
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The poultry queen who made the father proud



She has strived hard to expand into newer areas while keeping the leadership in poultry business intact. If Dr Rao was the pioneer of organized poultry business in the country, Anuradha Desai has fine tuned the vision she inherited from her father and is today — like her father in his days — the voice of the Indian poultry industry.

Solidity, practicality, extreme determination and strength of will, these words rightly describes this powerful woman of the poultry sector. The chairperson of the world's second largest poultry concern, Venkateshwara Hatcheries Group (VH), Anuradha Desai inherited the business' stewardship from her father the late Dr B V Rao. The company has seen a growth from Rs.400 crore to Rs.5,000 crore (\$1 billion) since she took over the reins in 1996 after her father passed away. Today, they are the number two egg producers and third largest poultry producers in the world. They have exports to the tune of Rs. 230 crore, which include products like egg powder, vaccines and animal medicines.

The Rao family migrated to Pune in the late 1960s and Anuradha, the eldest of the three siblings, learnt the ropes of the poultry business at a very young age as her father set up VH as a small operation along the banks of Pune's Mutha river. She almost grew up on the farm and at a time when children of her age were busy playing hide and seek, she was engrossed with the birds, feeding them and acquainting herself with the nuances of poultry hygiene.

With a degree in law, this low-profile, simple business tycoon, who is mostly seen in understated salwar-kameezes and a trademark red bindi has come a long way as she now oversees a multi-activity business including eggs, egg powder, poultry feed,

animal feed, vaccines, biotech, R&D and now even wine distribution and entertainment. She has strived hard to expand into newer areas while keeping the leadership in poultry business intact. If Dr Rao was the pioneer of organized poultry business in the country, Anuradha Desai has fine tuned the vision she inherited from her father and is today — like her father in his days — the voice of the Indian poultry industry.

Mrs Desai spent four years as President of the World Poultry Congress, helping improve India's standing in the sector. As a Chairperson of the National Egg Co-ordination Committee, she has played a significant role in the quantum leap of egg production, consumption &

export in the country. She is the first woman to be elected as President of World Poultry Science Association (IB) for 4 years from 1996.

A Woman of conviction and determination, she has excelled in a largely male dominated arena. She practices and preaches a strong decision making quality. When Venky's London division took up the ownership of Blackburn Rovers, making her the only Indian at the helm of an English Premier League team, she said, "I like decision-making and I'm not afraid of taking them."

Also this multifaceted woman is very closely attached to her family. Venky's, as it is popularly known, still has all the hallmarks of a close knit family business. Desai conducts most of her business from a sun-soaked wooden pergola at her white-washed bungalow amidst a lush green five-acre plot in Pune. It's where her parents used to live and now so does she, along with her husband Jitendra and daughter Uttara as well as her two brothers Venkatesh Rao and Balaji Rao who live in different blocks.

Being a firm decision maker doesn't take away from her the tender and caring part of her feminine personality. Every morning she makes it a point to wish all her employees on her way. For she believes that, "Every time you spend a few minutes to listen to somebody who has a problem, you have earned yourself a relationship for life," she says. That person is bound to go back with the conviction that somebody cares about them and will do their best for you every time."

A woman very suave yet powerful, Anuradha Desai has been the voice of the poultry sector in India, has always fought for the just and the right and is rightly referred as "Mother Hen". ■

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Training program for cold store operations

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Meats (Variety)

Storage Conditions

Sanitation	Variety meats should be thoroughly washed and drained.
Chilling	Chill to a maximum of 36° F (2.2°C) within 4 hours after removal from the carcass.
Packaging	Vacuum packaging variety meat protects against weight loss and quality deterioration.
Boxing	Boxes containing 30 lbs (13.6) of meat should be made of 200-lb (91-kg) test, water resistant, corrugated fiber material. When 30-60 lbs (13.6-27.2 kg) are boxed, use 275-lb (125-kg) test material.
Packing	Place variety meats at 36° (3.3°C) or colder within 30 minutes after harvest
Box Marking	Clearly mark each box with the pack date and code date.
Palletizing	Provide at least 2 inches (5cm) air space around the side and ends of each box.
Freezing	Blast freeze to reach 40°F (4.4° C) within 15 hrs after harvest, 28°F (-2.2° C) within 60 hrs after harvest, and 0°F (-18°C) within 120 hrs after harvest.
Strong Life	Varies with cooling rate, draining, and packaging methods. See Tables 1 and 2.

Inconsistent quality of variety meats packaged and frozen for domestic and/or export markets suggests a need for guidelines. The economic opportunities associated with improved quality for both the producer and storage warehouse are significant. Wholesome, high quality, convenient products can be consistently marketed, provided one adheres to good sanitation, chilling, and handling practices.

Sanitation

Microflora associated with unfrozen and temperature-abused animal variety meats have been identified. Variety meat items are generally contaminated with a combination of bacteria commonly associated with unfrozen red meat, with *Micrococcus* being the most frequently isolated gram-positive bacterium and

Escherichia coli the predominating gram-negative isolate. It is not uncommon to find variety meat possessing aerobic plate counts greater than 10⁴ and often greater than 10³ per cm². The method of washing, draining, and packaging greatly influences the microbial level.

Microbiological cleanliness should be monitored and routinely verified by random swab samples of the equipment for aerobic plate count. Effectively cleaned and sanitized equipment should not exceed an aerobic plate count of 100 per in² (16 per cm²) of surface.

All meat items arriving at a warehouse direct from the slaughter floor should be thoroughly washed and drained to remove most of the surface contamination. Care should also be taken to maintain facilities and equipment sanitation so that no more than 100 organisms/in² (16 organisms/cm²) originate from this source. Meticulous attention to equipment sanitation will help minimize bacterial pick-up. Conveyors, scalders, washers, drain tables, racks, trays, and other in-line equipment must be thoroughly cleaned and sanitized after each production shift, using USDA-approved materials and concentrations.

Microbiological cleanliness should be monitored and routinely verified by random swab samples of the equipment for aerobic plate count. Effectively cleaned and sanitized equipment should not exceed an aerobic plate count of 100 per in² (16 per cm²) of surface. Prior to packaging, all variety meats should be drained of blood, water, and fluid to avoid weakening the shipping container. Sanitation must not be limited to production shifts. Good sanitary habits should also be practiced during operation breaks, by cleaning of knives, gloves, boots, and other equipment. Hands and gloves should be washed and frequently sanitized during each operation shift.

Chilling

Rapid chilling of variety meats is a major factor in maintaining quality and extending storage life. Rapid temperature reduction is absolutely necessary reducing bacterial growth. Therefore, these products should be chilled as rapidly as possible to a uniform product temperature of 34°F (0°C) or lower. A good manufacturing practice is to reduce perishable products to a maximum of 36°F (2.2°C) within 4 hours after removal from the carcass. Maintain the product holding area at 36°F (2.2°C) or less. This may be accomplished through tray chill, rack chill, hydro chill (i.e., liquid immersion and/or spraying), or blast freezing at -5°F (-20.6°C) with an air velocity of 500-1000 ft/min (152-305 m/min). One may expect a significant increase in aerobic plate count of variety meats when subjected to 86°F (30°C) for 6-12 hours.

Plate counts may increase from 5,000 per in² (790 per cm²) at slaughter to 323,000 per in² (50,000 per cm²) at 12 hour post-slaughter when meat is held at 86°F (30°C).

Packaging

Variety meat items are packaged and packed in a multitude of ways, often to buyer specifications. As a general rule, products over 30 lbs (13.6 kg) are packed without overwrapping in wax-coated boxes. Tenth to thirty-pound (4.5-13.6 kg) boxes are used for variety meats that are individually wrapped or in a polylined box.

Poly-liner bags or sheet liners can be troublesome if the



The best method for protecting unfrozen variety meat against weight loss and quality deterioration during transit and storage is vacuum packaging following a thorough wash immediately after removal from the carcass.

film becomes folded into the frozen meat. They do, however, provide good product protection from freezer dehydration. Therefore, when poly-liners are used, care should be taken to assure that the bags do not become folded into the meat. Polyvinyl chloride bags having a minimum wall thickness of 3 mils are recommended. Poly bags should be closed with a positive seal, such as the use of a twist tie or heat seal.

The best method for protecting unfrozen variety meat against weight loss and quality deterioration during transit and storage is vacuum packaging following a thorough wash immediately after removal from the carcass. When protection from weight loss, off-odor, and excessive microbial growth during refrigerated transportation is the goal and if the product is not to be displayed, freezing in polyethylene-lined boxes may be more practical.

Boxing

The box or carton used for variety meats should be constructed of materials adequate to withstand normal production and transportation abuse. Wet strength

Regardless of the packing procedure employed, product must be promptly removed to the initial chill within 30 minutes after harvest. During worker lunch periods, work breaks, or other production interruptions, all product in the pack-off-process should be held at 36°F (2.2°C) or colder.

adhesive should be used in the construction of the corrugated paper. Boxes should be staple-free and the inside surface should be wax coated or covered with some other moisture resistant lining. Box size should permit a desirable net weight but not over 60 lbs (27.2 kg). Boxes containing 30 lbs (13.6 kg) of meat should be made of 200-lb (91-kg) test, water resistant, corrugated fiber material. When 30-60 lbs (13.6-27.2 kg) are boxed, use 275-lb (125-kg) test material. Box style may consist of a 2-piece full telescope or 1-piece folded inter-locked box. Depth of box should not exceed 6 inches (15 cm) in order to facilitate chilling and freezing. Box filling should avoid bulging tops or bottoms to reduce difficulties in pallet stacking. A 0.5 inch (13 mm) head space within the box is suggested. Either code or open dating should be printed on each box with 3/4 inch (2 cm) letters. Mark top and both ends of the box "KEEP FROZEN 0°F (-18°C) OR COLDER." Box weight should be clearly marked and should include metric weights when for export. Bilingual titling should also be used for export.

Packing Procedures

Packing procedures in general use are cold pack and/or hot pack. Cold pack procedure requires a well drained product to be chilled to 36°F (2.2°C) at the geometric center. The hot pack (50-100°F or 10 - 37.8°C) commonly used for variety meat includes boxing of well-drained, un-chilled product. Dry ice may be used for each 10 lbs (4.5 kg) of meat and is spread throughout the box. Avoid dumping the dry ice in a localized area. This quantity of dry ice will serve to increase the rate of chill when used with air cooling at 28-30°F (-2.2 to -1.1°C).

A 60-lb (27.2-kg) box of hot-pack liver would represent approximately 3,612 BTUs (3,811 kJ) when the specific heat is 0.86 BTU/lb•°F (3.6 kJ/kg•K) and the T (delta T) is 70°F (21.1°C). One pound of dry ice pellets or snow could remove 100 BTUs (1 kg removes 233 kJ). Consequently, it would take 36 lbs of dry ice pellets or snow to cool a 60 lb box of liver from 100 to 30°F (37.8 to -1.1°C). It is important to note that the use of dry ice can only serve to start a rapid chill. Product not packed with dry ice should



be quickly removed from the slaughter floor to a blast chilling unit for rapid cooling.

Regardless of the packing procedure employed, product must be promptly removed to the initial chill within 30 minutes after harvest. During worker lunch periods, work breaks, or other production interruptions, all product in the pack-off-process should be held at 36°F (2.2°C) or colder. Staggering lunches and breaks may be a suitable alternative to assure temperature control at all times.

Box Marking

Each packed box should be clearly marked with pack date and shift in cryptic or open code as preferred. The markings should be 3/4 inch (2 cm) minimum height and located on the same end panel as the USDA inspection legend. Code dating will assist in product rotation during storage. The general storage life of frozen variety meats is 2-9 months depending upon the class of animal, microbial load, rapidity of handling, and composition of the particular type meat.

Meat products begin a process of deterioration immediately after being removed from the carcass. The

rate of deterioration can be controlled by expeditious reduction of product temperature to 0°F (-18°C) or colder. The first 30 minutes after harvest is the most critical period. Therefore, all variety meat products should be moved from the harvest area within 30 minutes after being removed from the carcass and placed in a blast chill or freezer to start the chilling cycle. A good practice would be to reduce the internal temperature to:

- 40°F (4.4°C) or colder within 15 hours after harvest
- 28°F (-2.2°C) or colder within 60 hours after harvest
- 0°F (-18°C) or colder within 120 hours after harvest

These time/temperature requirements may be accomplished through the use of a cooler at 28-36°F (-2.2 to 2.2°C) when the air circulation over the product is 500 ft²/min (152 m/min). The blast freezer should be over-rated at -25°F (-31.7°C) with air circulation at 500-1000 ft²/min (152-305 m/min). Place all palletized product within the blast freezer so that air flow through the spacers is not interrupted. The product temperature should be 0°F (-18°C) or colder within 120 hours after being removed from the carcass.

The blast freezer capacity along with the total load, product temperature, product flow, pallet characteristics, temperature, and air flow will all influence the rate of freezing. It is recommended that the smaller hot-packed boxes be frozen to 0°F (-18°C) within 72 hours and the large hot-packed boxes in 120 hours. Comparable palletized cold pack (40°F/4.4°C or less) product should be frozen to 0°F (-18°C) in 72 hours. Each firm is encouraged to conduct studies using thermocouples placed in the geometric center of the palletized boxes to determine the time, temperature, and uniformity of freezing within the freezer for each package character and size. WFLO also provides a computer program to estimate the time it takes to freeze product to a given temperature.

Storage Life

There is very limited information available on the 0°F (-18°C) storage life of animal variety meats. A few studies have been conducted on the microbial composition of liver, heart, tongue, kidney, lung, and esophagus with specific reference to Salmonella. Other studies were concerned with packaging type and weight losses of frozen offal. Even though the export of variety meats throughout the world is a large business, very little research data are available on these products. One of the most important features governing 0°F (-18°C) storage life of variety meat is cooling and draining the products prior to packaging.

Vacuum packaging appears to extend the shelf life of chilled variety meat. However, studies are not available on the improved shelf life compared to poly wrapped items.

Meat products begin a process of deterioration immediately after being removed from the carcass. The rate of deterioration can be controlled by expeditious reduction of product temperature to 0°F (-18°C) or colder. The first 30 minutes after harvest is the most critical period.

Despite the lack of storage information on variety meats, it is clear that rapid freezing of variety meats is very important in maintaining product quality. However, extremely rapid freezing may cause problems of weight loss during thawing along with loss of color. Because research data are not available, the commercial industry has practiced a variety of systems for handling, packaging, and freezing variety meats. For example, it has been suggested that brain and kidney should be slow frozen while cheek meat, lip, snouts, head meat, and weasand are best fast-frozen. This points out that the chemical and physical composition of each variety meat is unique and different, and each may require different freezing conditions to provide the most suitable quality.

General commercial practice suggests that one may store variety meat without wrapping or packaging in a box for 2-3 months, while keeping a similar product 4-5 months if loosely poly wrapped and 8-9 months when vacuum-packaged. It appears that, with adequate packaging, most variety meats can be kept at 0°F (-18°C) for 12 months.

Lack of research data has caused industry wide variation in the recommended handling and storage of variety meat and further serves to indicate a need for research information specifically designed to study the most suitable freezing method and storage life of each product type.

Excerpted from the World Food Logistics Organization's Commodity Storage Manual.

The World Food Logistics Organization (WFLO) is a non-profit organization dedicated to the proper handling and storage of perishable products and the development of systems and best practices for the safe, efficient, and reliable movement of food to the people of the world. WFLO is a Core Partner of the Global Cold Chain Alliance, an umbrella organization that unites partners to be innovative leaders in the temperature-controlled products industry.

For more information, visit www.wflo.org.

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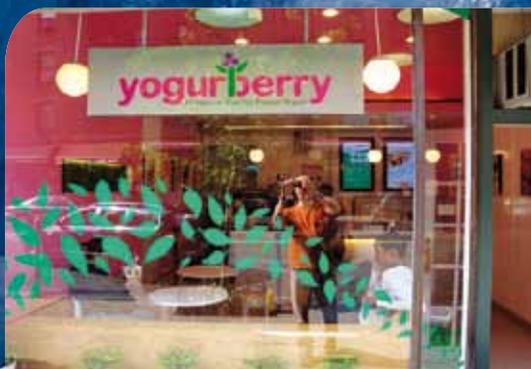
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Red Mango, the US frozen yoghurt chain debuts in India

US based Red Mango, has opened its first outlet at the Ambience mall in New Delhi occupying an area of 13,000 sq ft. The company is planning to open 200-250 outlets in next 5 to 10 years. The company is planning to expand in cities like Delhi, NCR, Mumbai and Bangalore before moving into tier 2 cities. As a part of the strategy the company will initially open its own stores and later expand through the franchise route.



Global frozen yogurt player Yogurberry to expand operations in India

Korea-based frozen yogurt maker Yogurberry said it will set up seven fresh stores in the country by end of next year and another 100 over the next five years. "The expansion plan will begin with new stores in Chennai and Bangalore, and additional stores in cities like Delhi-NCR and Mumbai," a company official said. After setting up stores in metros, the yogurt-maker said it will expand to tier-2 and tier-3 cities. The South Korean firm has set up its operations in India through Dubai-based franchise operator - Synergy

Holdings - as its master franchise. An official at Synergy Holdings said the franchisee plans to invest Rs 50 crore in the current financial year to expand operations.



Chandigarh to Get Automatic Poultry Processing Plant

The National Meat and Poultry Processing Board (NMPPB), an autonomous body under the auspices of the Ministry of Food Processing India (MoFPI) is hired for the purpose of setting up a poultry processing plant in Chandigarh, a Rs 45-crore project. The cost of the consultancy services was reported to be Rs 37 lakh, but he did not confirm this. The consultants role is to prepare a detailed project report (DPR) containing different options for machinery and equipment, agricultural drawings, structural designin, etc. His next document will be a tender

that specifies that the project will commence only after the mandatory approvals are obtained, and if any are required before and after it is commissioned, the consultant will comply with the same.



Concor plans to set up 3 logistics parks in Bengal

CONCOR plans to set up three logistics parks in West Bengal at an estimated investment of Rs 150 crore. This is part of the company's plan to set up 15 such hubs across the country. According to Mr Sanjay Swarup, Group General Manager of Concor, the corporation has identified land at Durgapur in Burdwan district, Dankuni, in Hooghly district, and Siliguri in North Bengal, for developing these multi-modal facilities. One such park will require nearly 100 acres of land. These parks will have facilities like warehouses, container

yards and cold chains under one roof. Apart from three parks in West Bengal, Concor has identified three locations in Andhra Pradesh; four in Odisha; one each in Maharashtra, Gujarat and Rajasthan; and two in Uttarakhand, for setting up such facilities.



steel processing.

Amara Raja plant to make tall storage racks to save space

Newer retail stores, warehouses and manufacturing companies now stack up products vertically, as shrinking space and high rentals pose a challenge in cities. There is demand to go up to 30 metres for storage in some sectors. The Hyderabad-headquartered Amara Raja Group is setting up the plant with an investment of Rs 40 crore to manufacture high-rise, metallic-based, vertical storage racks. The unit will come up at Rangampeta, about 20 km from Chittoor town in Andhra Pradesh. The capacity of the unit will be 25,000 tonnes a year of



Ethylene-based anti-rotting agent for fruits, vegetables launched

MHW Agrology, a Spanish-based company, has come up with a solution to delay the aging of vegetables. In a release, the company said it has released products that increase the life of fruits and vegetables by absorbing ethylene, the main reason for the rotting of goods. MHW said using the products, available in sachet form, apple growers could store their fruit for about 12

months, while apricots could be stored for three months and flowers could be kept fresh for several weeks.



Rinac India aims 15% share of refrigeration system in pharmaceuticals sector

Rinac India Ltd aims to capture 15 per cent share of the Rs 500-crore worth of refrigeration system market in the pharma sector in the next two years. "We currently have 5 per cent share in the Rs 500-crore refrigeration system market in the pharma sector. We want to take this to 15 per cent in the next two years," said

Rinac India Chief Executive Officer R Krishnan.



West Bengal to allow inter-state transfer of potato after October

The West Bengal government has decided to curb its decision to restrict inter-state transfer of potato after October. The new harvest starts coming into the market from November. Senior officials said this advisory to restrict sale of potato outside West Bengal has been issued to cold storages in the state to tackle the shortage of potato in the local market since the state crop has not been very good.



Warehouse Corporation proposes Rs 64 crore for enhancing storage capacity

The state warehouse corporation has come up with a proposal to set up 22 cold storage, 100 containers and 50 vans along with allied equipment and software to increase the storage capacity in the state. The total cost of the storage capacity project is Rs 64.46 crore.

The corporation has recently received an approval to set up import-export facility centre at Uran, near Jawaharlal Nehru Port Trust. It is issued by the Agricultural and Processed Food Products Export Development Authority (APEDA).



Centre announces Rs 250-cr package for Uttarakhand

With an aim to boost growth, the Centre has announced a series of new sops with an estimated cost Rs 250 crore for Uttarakhand. These include a textile park, two spice parks, two convention centres and horticulture cold-storage chains. The Centre would develop integrated cold storage chains in the hill state to boost the horticulture sector. For these storages, refrigerated transportation system would be provided.



PSU banks to disburse Rs 6 lakh cr to agri sector this fiscal

Public sector banks have set a target to disburse Rs 6 lakh crore as agriculture loan during the current fiscal. This is Rs 25,000 crore higher than the target set for them.

M Narendra, chairman and managing director, Indian Overseas Bank, said the banks would be focusing on non-farming activities. In a move to increase the productivity of agriculture in Tamil Nadu, public sector banks had set a target to increase their lending to the sector by almost 41 per cent to Rs 51,000 crore. The significant jump is mainly due to the increase in investment credit for the farmers. Of the total

disbursement, 60 per cent would go towards crop loan. According to the State level Bankers Committee, around 7.7 million farmers have so far availed of banking credits of the total 8.2 million, using Kisan Credit cards.



Slaughter houses found unsafe in Kottayam

A study conducted by Tropical Institute of Ecological Sciences (TIES) revealed the presence of harmful bacteria in the meat samples bought from the cold storages and slaughterhouses here.

"More than 11 types of bacteria and four types of fungus were found in the samples collected from 12 different places including Kottayam, Kaduthuruthy and Pala. One-third of the sample was highly contaminated while the remaining portion was 60%

contaminated. The samples were collected from 12 different places in the district that included the slaughter houses at Kottayam, Kaduthuruthy and Pala. One-third of the sample was found highly contaminated while the remaining two-third was 60% contaminated.



More farmers see red, throw tomatoes on streets

Vegetable growers of Chikmagalur taluk, especially farmers cultivating water-intensive crops like tomatoes, are in a fix. Despite paucity of rain, they have been growing tomatoes relying on borewell water and other resources. Unfortunately, all their efforts seem to have come to a nought as prices of tomatoes have plummeted causing the enraged farmers to throw their produce on the streets. The farmers are demanding that the government should provide cold storage facilities near vegetable growing

areas. He says the farmers who grow vegetables are not big land holders and hence cannot have their own cold storage facility.



CCEA nod for national mission for food processing

The government approved the launch of new centrally sponsored scheme 'National Mission for Food Processing' in cooperation with states to provide much-needed thrust to the sector. The Committee on Economic Affairs approved National Mission on Food Processing (NMFP). This scheme will start in cooperation with states in 2012-13. The basic objective of the mission is to decentralise implementation of Food Processing Ministry's schemes, which will lead to greater participation of

states. This year, the Centre will through NMFP provide assistance to the states for technological upgradation, skill development, promotional activities and setting up of non-horticultural cold storages.



EMU: The Wonder Bird

Recognizing the economic importance, Australian Government in 1975 Started domesticating these birds living in Jungles by establishing big farms. This Activity spread to America, France and other European countries in the early eighties. It is reported that there are about 90,000 Emu farms in America and an Emu Association was established in 1993.

EMU, a native to Australia, is the third biggest bird species after Ostrich & Cassowary. On an average it grows up to 6ft and weighs 45 to 50 Kgs. The bird is known to adapt wonderfully well to the climatic conditions of our country. It can be grown and bred everywhere from Kashmir to Kanyakumari. But the best part which makes it a wonder bird is that every part including the waste of the bird is economically viable. Emu meat, Emu oil, Emu feathers, Emu egg shells and even Emu droppings.

Recognizing the economic importance, Australian Government in 1975 Started domesticating these birds living in Jungles by establishing big farms. This Activity spread to America, France and other European countries in the early eighties. It is reported that there are about 90,000 Emu farms in America and an Emu

Association was established in 1993. The activity then spread to China, Japan, Malaysia and Korea and rest parts of the world. In India one Emu farm by name Vijaya Ratite Farm (Pvt.) Ltd. was established by Shri P. Satyanarayana IN Andhra Pradesh in 1996 on small scale. Similarly in Maharashtra state Shri. Ganesh Kale & Group introduced 20 pairs of Emu during 2001 & in Baramati Shri. Sandip Taware has established first Emu Farm with 10 pairs in April 2002. He has also established Emu hatchery.

Emu is a social bird with dark whitish complexion. The birds live in groups and can thrive under varying climatic conditions ranging from 0 degree C. to 52 degree C. These Birds are omnivorous and eat leaves, vegetables, fruits, insects, worms. They can be fed modified poultry feed. Also Emu is an exotic bird and it has not been included in any of the schedules of wildlife (protection) Act, 1972. The provisions of Wild Life Protection Act, 1972 and rules made there under are not applicable for these birds. As such no permission from forest Department is necessary for rearing, farming and selling of these birds.

The economic importance of Emu

• EGGS

Laying period of Emu in India starts after 18 to 24 months and eggs are laid during September to February. Eggs are dark bluish green in colour with a weight of 450 to 700 gms . A bird can lay 20-60 eggs in a season. Incubation period is 50- 52 days and newly hatched bird will be of 6-7in height. The lift span of the bird is 30-35 years. The productive economic life of the bird is 20.25 years.

• MEAT

Meat of Emu bird is reddish in colour, soft and with less of cholesterol 98% fat free. Emu meat is lower



Few Facts about EMU

Height at birth	8 - 10 inches
Adult Height	5 - 6 feet tall
Adult weight	100 - 140 pounds
Color	Black and Brown
Health	Generally Robust, Hardy
Temperament	Friendly, Docile
Lifespan	35 to 40 years (approx)
Productive years	Up to 25 years
Eggs per year	Average egg laying 10 to 15 eggs in the first breeding season, gradually increases up to 20-30 eggs in subsequent breeding seasons
Age at slaughter	16 18 months
Incubation Period	48 - 52 days
Percentage of eggs hatched	Approximately 70 percent
Space per Adult bird	600 sq.ft. red and hardy soil

in fat than Chicken. Turkey, Pork & Beef It is the Super Food of the New Millennium. The price commands higher price than that of meat from Other birds/animal and is reported at Rs. 300-450 per Kg. The American Heart Association has included Emu meat in its listing of heart healthy meats. Emu gives red meat lovers

what they want and health conscious consumers what they need.

• FEATHERS

Feathers are soft non allergic / anti static, beautiful double quilted and are used in hats, dresses, computer

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Suguna Foods

Pioneers of Integrated Poultry

- P. Rajan Mathews

Business Head

Retail & Consumer Products, Suguna Foods



ICE: Suguna is today a known brand in the poultry industry, how has the journey been so far?

Suguna's journey has been an historical from the time when it was started as small venture and has grown into a Rs. 4300 crore organisation. Today Suguna ranks among the top ten poultry companies worldwide. With operations in 11 states across India, it offers a range of poultry products and services. The fully integrated operations cover broiler and layer farming, hatcheries, feed mills, processing plants, vaccines and exports. Suguna markets live broiler chicken, value added eggs and frozen chicken. With the intent to provide consumers with fresh, clean and hygienic packed chicken, Suguna has set up a chain of modern retail outlets. Today, the company's brand Suguna Chicken is a household name in India. With its Suguna Daily Freshh outlets, Suguna Home Bites, Suguna Anytime processed chicken and four varieties of specialty Suguna value added eggs, Suguna is the undisputed leader in poultry products. Suguna Home Bites being the latest in its product range is a new category of home meal replacements (HMR).

ICE: What has been the promoter's motivation to give shape to a phenomenal organization like Suguna?

Our Chairman Mr. B. Soundararajan and Managing Director Mr. G.B.Sundararajan saw potential in growing the Indian Poultry Industry through integration, which later came to be known as Contract Farming. This led Suguna Poultry to pioneer contract farming in India. In 1986, Mr. B. Soundararajan and Mr. G. B. Sundararajan set up a poultry farm with 200 layer birds at Udumalpet. During 1989 - 90, when chicken prices crashed because of an over-supply of birds in the local market, Suguna saw an opportunity for business growth by helping the poultry farmers who had bought feed and medicines on credit and could not clear their dues. To help them recover their money,

these visionaries began to provide feed and health support to indebted farmers in return for the end product - eggs. The success of this exercise gave birth to the Suguna Integration Model. The poultry integration model has set a win-win situation for both the farmer and the integrator. Farmers are provided with day-old chicks, feed and health support. Performance is monitored on a daily basis with Suguna field staff visiting the farms to check on the health of the birds, feed intake, growth and mortality levels. In six weeks time, the birds are weighed and are ready to be sold by Suguna. Farmers are paid a handsome growing charge for the birds at the end of this period. Thus, Suguna takes this success model to the next level vision of energizing rural India benefiting the country, farmer and the company.

A constant and relentless drive has taken the company's growth and expansion which covers over 15,000 farmers from 8,000 villages in 11 Indian states. Impressed by the model and its success, Suguna receives invitations from many state governments to set up its operations. Many investors and delegates from across borders visit Suguna's facilities to study this model and later adopt in their own countries.

With mastery and success in contract farming, Suguna has shaped the poultry industry to its current position in India.

ICE: What are your views on the future of poultry in India?

India's poultry industry represents a major success story. While agricultural production has been rising at the rate around 2 percent per annum over the past two to three decades, poultry production has been rising at the rate of around 8 percent per annum

The poultry industry in India represents a major

success story. What was largely a backyard venture before the 1960s has been transformed into a vibrant agribusiness with an annual turnover of Rs 20,000 crores. Today, India is the third largest egg producer in the world (after China and the United States of America), and the nineteenth largest broiler producer. Undoubtedly, this impressive growth is a result of several factors, such as active developmental support from the state and central government, research and development support from research institutes, international collaboration and private sector participation. A point worth mentioning here is that Indian poultry is self-sufficient, supported by a broad and strong genetic base in which the productivity levels of broilers and layers are equal to those achieved elsewhere (e.g. in the United States of America and the European Union). Undoubtedly, these achievements are quite significant. Today, however, globalization is posing greater challenges: namely, making the industry globally competitive and viable; and fulfilling the quite enormous potential for growth that is presented by changing food habits and preferences.

Poultry is today the major source of meat in India. Its share in total meat consumption is 28 percent, as against 14 percent ten years ago. It has outpaced its two competitors – beef and veal, and buffalo meat. High mutton prices, religious restrictions on beef and pork, and the limited availability of fish outside coastal regions have all helped to make poultry meat the most preferred and most consumed meat in India. Expanding domestic production and increasing integration have pushed poultry meat prices downward and stimulated its consumption. The annual per capita consumption of eggs and chicken meat has grown from 10 eggs and 146 grams in 1970's to about 44 eggs and 1.8 kilograms, presently. The National Institute of Nutrition recommends that a balanced diet should contain 180 eggs per annum and 30 grams of meat 11 kg per annum.

The future outlook for the Indian poultry sector appears to be bright. The most optimistic forecasts predict a two- to three-fold increase in poultry production. According to one projection, egg production is expected to reach 106 billion by 2020 poultry meat production to 4.2 million tonnes.

ICE: As the industry data reveals that the chicken processing is just 5 % of the total poultry market in India, what is your take on this?

Indian consumers mostly prefer live and fresh chicken butchered before their eyes, which results in 95 percent of chickens being slaughtered by the retailers

in a very unhygienic manner. Traditional poultry dressing facilities at the wholesale or retail level are completely manual, with no sanitary measures taken for the dressing floor or the workers. As a result, hygienic slaughtering and proper utilization of byproducts are currently the most important issues in the Indian meat industry.

But with the development of the modern retail there is some demand for frozen or chilled poultry products from hotels, fast food restaurant chains and some urban consumers. About 6% of poultry meat is sold in processed form, of which only about 1% undergoes processing into value-added products (ready-to-eat/ready-to-cook). The recent emergence of supermarkets and shopping malls is also supporting growth in the retailing of chilled/frozen poultry products.

The modern poultry processing sector in India consists of more than 12 firms, which are mostly operated by poultry integrators located in or near major urban areas. These firms use imported equipment and follow hygienic procedures, including monitoring employee health, water supplies, sanitary conditions and refrigeration facilities.

Chilled whole birds and parts are sold in markets and shops in major cities. Acceptance of chilled meat is higher than that of frozen meat, yet growth in chilled meat consumption could help to accelerate the transition to frozen poultry products. Growth in the retail segment is being encouraged by new approaches from poultry integrators, including establishing integrator-owned or franchised chilled/frozen poultry shops, opening sales counters in existing food shops, and home delivery services. The recent emergence of supermarkets and shopping malls is also supporting growth in the retailing of chilled/frozen poultry products.

ICE: What are the positive indicators for the processed poultry in India?

There are various indicators of the processed poultry growth in India such as

- The changing lifestyles and demographic profiles of the Indian Households. Consumers are being exposed to the western lifestyles, cuisines and cooking and expect the same from the Indian markets also.
- The Indian Consumers are more health conscious and are willing to spend more towards healthy and clean food.
- The recent emergence of Modern Trade such

as supermarkets and shopping malls is also supporting growth in the retailing of chilled and frozen poultry products. The investments in the cold chain by these Modern Retailers are creating channels for the growth of the processed poultry in the Indian Market.

- To streamline the meat and poultry processing industry and the production of clean and hygienic meat products, the government of India launched the National Meat and Poultry Processing Board. The board is raising domestic standards in meat and poultry processing to international levels; developing uniform and effective meat quality testing systems and improving conditions in the wet-market.
- The National Meat and Poultry Processing Board has a greater role to play to educate consumers about the possible health hazards of chicken bought from a wet market as well as to accelerate the pace of the transition. Transition from a live-bird market to a chilled/frozen poultry product market is an important factor in the future expansion of broiler production.

ICE: What are the major challenges faced which are responsible for the limited share of processed chicken in India?

The major Challenges faced for expanding the processed chicken in India are

Consumer Awareness: Tremendous growth potential for the Indian broiler industry exists provided consumers are educated on the benefits of processed hygienic poultry products.

- Regulatory and Policies for healthy development of the meat and poultry sector: Policies governing from farm to the consumer plate needs to be oriented towards the development of the processed poultry.
- Raising domestic standards to international levels in processing, supply chain management, retailing and delivery.
- Current environmental pollution issues created by slaughterhouse waste materials esp in large cities and towns. Certain state such as Kerala has initiated the clean environment in the state towns as a result new chicken slaughter houses are not allowed within the municipal limits.
- Developing uniform and effective national meat quality testing systems and laboratories.

- Setting up training institutes for workers, technicians and managers in meat processing industries.
- Providing research and development for production and marketing of new value-added meat products for domestic and international markets.
- Government should actively Promote and regulate the meat industry for increasing exports. There should be proactive initiatives from the government in creating and promoting the India origin brand of healthy poultry products.

ICE: The major bottleneck as reported is the lack of cold chain, what do you think?

Unlike in the other Farm products such as grains, fruits and vegetables where processing can be carried into dehydrated dry ambient products and frozen products, but in meat and meat products the processing can only be done to its best natural form into Frozen processed products. Hence Cold chain becomes very critical and vital link in the development of processed chicken products.

From the Processing plant to the end consumer's plate, the development of cold chain depends on the following:

1. Stable Power supply: Cheaper and uninterrupted power will develop the cold chain across.
2. More governmental support and concessions should be provided to attract the private sector for investments into the cold chain.
3. Modern Retail development will ensure private sector and FDI in development of this cold chain. Today the skeletal cold chain is developed only to Tier I and tier II cities which needs to grow further into smaller towns and only then can the processed poultry products reach the masses.
4. Development of Retail outlets for frozen / chilled products: when the frozen products are nearer to the consumer the acceptability and the demand for the frozen / chilled products increase. Today any organized Super market has a cold freezer of around 400 liters and Hyper markets have around 800 – 1200 liters of cold freezer space which is grossly insufficient. Hence there is a large potential in such frozen / chilled retail outlets selling all forms of frozen products.
5. Consumer end of the Cold Chain: For the full development of the cold chain the domestic consumer should have adequate freezer space at home. In the first instance the domestic

household penetration of refrigerators is dismally low in India and majority of the average Indian households will have refrigerators of size 200 liters. Of this the Freezer space is just sufficient to keep the daily requirements of dairy products which results in no freezer space for the meat products. Even in household having more than 400liters of Refrigerators not more than one kg of packaged meat products can be stored at home. In the European and American markets every household possess a Deep Freezers of 200 liters for storing frozen products along with the regular refrigerators. Indian markets consider Deep Freezers as an Institutional appliance and not as a Domestic appliance.

ICE: How can this problem be sorted out when it comes to the major players of the industry?

Each of the major player is doing its own bit in creating the cold chain nearer to the consumers by creating neighborhood cold Freezer outlets to reach the end consumers at their doorsteps. Suguna has created its chain of Franchised Retail outlets "Suguna Daily Freshh" which sell Chilled and /frozen products. Similarly there are outlets such as Republic of Chicken and Venky's Express from other Poultry majors.

With each player creating its distribution infrastructure across the country and into the smaller towns the demand for creation of cold chain and storages is increasing. Today you can find distributors with small cold storage rooms in smaller towns and this will penetrate into all towns. All the leading players are investing into creation of freezer spaces in independent outlets.

All major poultry players should join hands with the White Goods manufacturers / appliances to create demand for the frozen food appliances such as Deep Freezers and microwave ovens with defrost facility.

ICE: What steps do you think the government should take to address the problem of cold chain gap currently existing in the country?

Government should first ensure the uninterrupted supply of power at affordable costs. Only if affordable power is available then only the investments into Cold chains will be attractive. Government should also give priority in power supplies to Cold Chains.

The present concessions on investments are not attractive enough to any investor. More tax holidays and concessional supports in terms of lower sales taxes on frozen product sales and supports to the trade in selling Frozen products are required.

Attractive Foreign Direct Investments into processing plants and Cold chain is urgently required. Till date only two plants have received FDI into poultry processing. The investments into Cold Chain has been limited only to Snowman. Hence more FDI will only give momentum to the Cold Chain in the country.

ICE: Please share some light on the achievements of Suguna?

SUGUNA was one of the pioneers in setting up a state of the art processing plant for poultry processing of more than 2000MT per month and are the one and only PAN South who have the presence in Retail format of SUGUNA DAILY FRESHH .The Company is the only one of having Franchisee operation in the Retail format for chicken sales. It has a well-managed Supply Chain which delivers Chilled Fresh and Hygienic meat at the retail point on regular basis. The company has more than 150 Daily Freshh Outlets and plans to expand to 500 outlets by the year end of 2012-13 in the region of Tamil Nadu, Kerala and Karnataka and Andhra Pradesh.

ICE: Do you also plan to capture the Northern India market and what would be the key strategy?

We are already a major player in the poultry business in the northern India with operations in Punjab, UP and Rajasthan. We will only be further strengthening these markets with operations across the chain.

ICE: What does Suguna aims at, for the next two years when it comes to processed chicken?

Suguna Foods aims to double the sales of processed Frozen / Chilled Chicken in the next two years and increase the market share in Ready to Eat frozen products in both Chicken and vegetarian products. Processed Poultry products aims to become a 10% share of the Suguna Food's total turnover.

**SUGUNA FOODS LIMITED
(Formerly Suguna Poultry Limited)**

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CHILLAX!!!

Want a day off work?

So you want a day off. Let's take a look at what you are asking for. There are 365 days per year available for work. There are 52 weeks per year in which you already have 2 days off per week, leaving 261 days available for work. Since you spend 16 hours each day away from work, you have used up 170 days, leaving only 91 days available. You spend 30 minutes each day on coffee break which counts for 23 days each year, leaving only 68 days available. With a 1 hour lunch each day, you used up another 46 days, leaving only 22 days available for work. You normally spend 2 days per year on sick leave. This leaves you only 20 days per year available for work. We are off 5 holidays per year, so your available working time is down to 15 days. We generously give 14 days vacation per year which leaves only 1 day available for work and I'll be darned if you are going to take that day off!

What does your profession say about you?

MARKETING - You are ambitious yet stupid. You chose a marketing degree to avoid having to study in college, concentrating instead on drinking and socializing which is pretty much what your job responsibilities are now.

ENGINEERING - One of only two signs that actually studied in school. It is said that ninety percent of all Personal Ads are placed by engineers. You can be happy with yourself; your office is full of all the latest "ergo dynamic" gadgets. However, we all know what is really causing your "carpal tunnel syndrome."

ACCOUNTING - The only other sign that studied in school. You are mostly immune from office politics. You are the most feared person in the organization; combined with your extreme organizational traits, the majority of rumors concerning you say that you are completely insane.

HUMAN RESOURCES - Ironically, given your access to confidential information, you tend to be the biggest gossip within the organization.

CUSTOMER SERVICE - Bright, cheery, positive, you are a fifty-cent cab ride from taking your own life. As children very few of you asked your parents for a little cubicle for

your room and a headset so you could pretend to play "Customer Service."

PARTNER, PRESIDENT, CEO - You are brilliant or lucky. Your inability to figure out complex systems such as the fax machine suggest the latter.

GOVERNMENT WORKER - Paid to take days off. Government workers are genius inventors, like the invention of new Holidays. They usually suffer from deep depression or anxiety and usually commit serious crimes while on the job... Thus the term "GO POSTAL"

Pick a starting salary

Reaching the end of a job interview, the Human Resources Person asked the young MBA fresh out of MIT, "And what starting salary were you looking for?"

The candidate said, "In the neighborhood of \$125,000 a year, depending on the benefits package."

The HR Person said, "Well, what would you say to a package of 5-weeks' vacation, 14 paid holidays, full medical and dental, company matching retirement fund to 50% of salary, and a company car leased every 2 years - say, a red Corvette?"

The Engineer sat up straight and said, "Wow!!! Are you kidding?"

And the HR Person said, "Certainly, ...but you started it."

Employer & Applicant

Employer to applicant: "In this job we need someone who is responsible. "

Applicant: "I'm the one you want. On my last job, every time anything went wrong, they said I was responsible. "

Sahiba Dhingra, GCCA India
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Freezer Fresh

Aisha Haque, GCCA India
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Kohinoor sauces and frozen foods

US spices and seasonings firm McCormick will help basmati rice brand Kohinoor extend to other food segments and expand its global footprint. They have identified cooking ingredients such as sauces, and convenience foods such as ready-to-eat, ready-to-cook and frozen foods, to launch its products.

IFB Royal Prawns

The Ready to Cook and hygienically processed prawns are widely available in the cities of Kolkata, Delhi, Bangalore, Hyderabad, Chennai, Pune, Mumbai etc. IFB Prawn POPS and Breaded Fish Fillets, Ready to Fry Prawn / Fish products as well as freshly frozen prawn / fish and Ready to Cook products are available from over 800 food stores across the country's metros and tier 2 cities.



AMUL Flaavyo

AMUL launched Frozen Yoghurt under the brand name Amul Flaavyo. Frozen Yoghurt is a tangy combination of Ice-cream and Probiotic Yoghurt base. It contains added real fruits (pieces) and essential vitamins. It contains all the therapeutic benefits of Yoghurt and Probiotic bacteria. It is available in five flavours namely Mango, Pineapple, Strawberry, Vanilla and Misti Doi.



Kawan Parathas

Kawan Parathas come in three distinct varieties; Whole Wheat, Flakey and Tawa. Kawan Whole Wheat Parathas deliver the Natural Goodness of Whole Wheat and is available in 325 gms, priced at Rs 72/-, Kawan Flakey Paratha – a unique offering is available in 325 gms, priced at Rs 68/- and Kawan Tawa Parathas are available in 325 gms, priced at Rs 63/- respectively.

AL Kabeer Arabic Koftas

Bringing the delicacy of the Arabic food to the customers Al Kabeer has introduced the frozen Arabic Koftas in packs of 300 gms. The koftas are savored by all and have good reviews in the market.



Hot and Fresh Idlis from Mc Cain

McCain Idlis are made with real rice and lentils. Super convenient, ready in 3 minutes in the microwave. Cholesterol and preservative free. A 360 gm pack consists of 6 pieces of Idli (210 gm) made of real rice and black gram lentil, and Sambar (150 gm) made of real dal (Split Red Gram) and vegetables and priced at Rs 60 only. The product is available at leading frozen food retail outlets and modern kirana stores across Delhi/ NCR

NATIONAL



Venue: Hilton Mumbai International Airport Hotel

City: Mumbai, Maharashtra, India

Date: 30 - 31 August 2012

In light of the growing complexities and trials faced by the Plant Leaders/ Manufacturing Leaders today, Plant Leadership Conclave is designed to address latest challenges and issues along with best practices in operating plants of various domains.



Venue: Mahatma Mandir Exhibition Centre

City: Gandhinagar, Gujarat, India

Date: 3 - 6 September 2012

Agritech Asia-Gujarat is concerned with the sector of agriculture. Held over a period of three days, renowned companies will exhibit the latest agricultural equipments and technology such as agricultural equipment and machinery, livestock, dairy farming, renewable energy and other associated products and in this process will be able to interact directly with the customers on a common platform.



Venue: Bombay Exhibition Center(BEC)

City: Mumbai, India

Date: 11 - 13 September 2012

International Foodtec India is a trade show dedicated only to the food processing and packaging of food and beverages. A unique platform to explore real new business in the Chinese market will be established. This event will be able to cover the entire value chain: from manufacturing and processing to sales.



Venue: Venue to be announced

City: New Delhi, India

Date: 12 September 2012

ASSOCHAM is organizing 4th International Summit cum Exhibition on Food Processing, Agribusiness & Dairy on 12 September 2012 at Hotel Le-Meridien, New Delhi for increasing visibility of Indian processed food, Agro & dairy market targeting international marketplace and prepare for investments.



Venue: Shamanur Shivashankarappa Parvatamma Samudya Bhavana, Davangere

City: Karnataka, India

Date: 28 - 30 September 2012

Rice Tech Expo Davangere is the Asia's largest trade show on Rice Processing Technology and Machinery. This is a unique event that concentrates on the development of the rice processing industries. It is the 17th edition of this International exhibition and Conference on the rice processing technologies.



Venue: Sri Ragavendra Hall

City: Pollachi, India

Date: 05 - 07 October 2012

The primary objective of this trade show is to make the farmers of the contemporary times aware of the latest and advanced agricultural products, services and equipments. All kinds of farm machinery and equipments and all sorts of good quality fertilizers will be highlighted in this event.

INTERNATIONAL



Venue: Pomurski Sejem

City: Gornja Radgona, Slovenia

Date: 25 - 30 August 2012

Agra-Agricultural Food Fair showcases all kinds of food processing and packaging machines, materials, systems and products under one roof. This is the show where the Public get to taste quality products and have the opportunity to buy directly from the manufacturers.



Venue: Lenexpo Fairgrounds

City: St. Petersburg, Russia

Date: 27 August - 02 September 2012

A professionally organized exhibition of International standards that will showcase all related products from around the world and will be instrumental in procuring trade from Levant Arab Countries, Iran and Pakistan, India and Sri Lanka, GCC and other Gulf Countries.



Venue: IEC International exhibitions center

City: Yekaterinburg, Russia

Date: 04 - 05 September 2012

Agro-Industrial Forum is one of the leading trade fair for agriculture industry in Russia. This is the 13th edition of the event which will be held between 04-05 September 2012 at IEC International exhibitions center. A agro seminar also will be held in conjunction of the event.

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Emu farming is now very well established in states of Maharashtra, Tamil Nadu, Gujarat and Andhra Pradesh. It is estimated that there are about 2,500 emu farms all over India. This business is now rapidly spreading to the states of Punjab, Himachal Pradesh, Haryana and Uttaranchal.

and car cleaning brushes and household decorative items. About 400 to 600 Gms of feathers would be available from a bird and each bird would fetch a high price.

- **SKIN**

The skin is very thin, soft and strong. Price of good quality skin is reported Rs.700/- to Rs.1000/- per Sq ft. and 8-12 sq.ft of skin is available from a well matured bird. The skin is used in the preparations of shoes, bags, belts, purses, jerkins and seat covers for expensive cars. At present raw skin of a matured bird would fetch about Rs. 1000 1200/-.

- **OIL**

About 4-6 a litter of oil is available from a bird which is devoid of any color taste and odor. At present market prices, the price of one litter refined Emu oil is Rs. 3000/- to Rs. 4000/- The oil is penetrating and is having moisturizing. Analgesic, ant allergic and antiseptic properties. The oil is used in analgesic ointments,

beauty creams and lotions, soaps, hair oils, shampoos, perfumes and massage oils. The raw fat/crude oil of Emu fetches Rs.1000 per Kg.

Clinical experience with Emu oil has shown that it's two major benefits are its anti- inflammatory properties and its ability to penetrate the skin. It also appears to provide some solar protection.

- **EYES**

The bird is able to see up to a distance of 10 meters and its eyes are being used to replace damaged corneas in human beings.

The general trend in the country is to use Emu eggs and the Emu meat is still gaining popularity. With a three-month pair of chicks costing as much as Rs 15,000, many emu farmers are still not willing to kill the golden goose, although the farmers are slowly realizing there's more money to be made by slaughtering the bird if they all get together and organize themselves to start a processing unit.

Emu farming is now very well established in states of Maharashtra, Tamil Nadu, Gujarat and Andhra Pradesh. It is estimated that there are about 2,500 emu farms all over India. This business is now rapidly spreading to the states of Punjab, Himachal Pradesh, Haryana and Uttaranchal. Presently emu farming is also being supported by various government organizations all over India which are providing farmers with lucrative subsidiaries and offers. There will be a big shortage of red meat in the years to come and emu is the best substitute. Emus are hardy birds and are even immune to bird flu, but have to be protected from other specific diseases including encephalitis. This makes the bird a completely wonder bird. ■

ICE Bureau, GCCA India
ice.coldchain@gmail.com



ICE Classifieds

Tenders

Andhra Pradesh Medical Services And Infrastructure Development Corporation

Hyderabad - Andhra Pradesh - India

Tender-Supply & Installation Of Items Required For Cold Chain At Hyderabad

Managing Director of Andhra Pradesh Medical Services And Infrastructure Development Corporation, Hyderabad, Andhra Pradesh invites tenders notice for supply & installation of items required for cold

Publish Dat-04-Jul-2012

Submit Before 07-Aug-2012

Due Date

The Tamil Nadu Co-operative Milk Producers Federation Limited

Supply, Erection, Commissioning Of Refrigeration System At Chennai

Managing Director of The Tamil Nadu Co-operative Milk Producers Federation Limited, Chennai, Tamil Nadu invites tenders notice for supply, erection, commissioning of refrigeration system for modernisation and expansion of coimbatore city.

Publish Date-04-Aug-2012

Submit Before-2-Sep-2012 03:15 p.m.

Due Date-

Bharat Heavy Electricals Limited

Supply Of Variable Refrigerant Flow Air Conditioning System At Ranipet

Bharat Heavy Electricals Limited, Ranipet, 630406 invites tenders notice for purchase of variable refrigerant flow air conditioning system. Tender document can be collected/ downloaded from Ranipet.

Publish Date-06-Aug-2012

Submit Before-29-Aug-2012

Due Date-

Central Public Works Department

Providing & Installation Of Central Air-conditioning With Variable Refrigerant At New Delhi

Executive Engineer of Central Public Works Department, New Delhi, Delhi invites tenders notice for providing & installation of central air-conditioning with variable refrigerant volume system. Tender document can be collected/downloaded from New Delhi .

Publish Date-26-Jul-2012

Due Date-

Kolar Chikkaballapur Milk Union Limited

Supply Of Refrigeration System At Kolar

Managing Director of Kolar Chikkaballapur Milk Union Limited, Kolar, Karnataka invites tenders notice for supply, installation and commissioning of 70000 letrs capacity link cold store, freon based refrigeration system. Tender document can be collected/downloaded from Kolar.

Publish Date-20-Jul-2012

Submit Before-16-Aug-2012

Due Date-

Pradeshik Cooperative Dairy Federation Limited

Lucknow - Uttar Pradesh - India

Installation And Supply Of Strength And Expansion Of Refrigeration Unit At Lucknow

Incharge(materials) of Pradeshik Cooperative Dairy Federation Limited, Lucknow, Uttar Pradesh invites tenders notice for installation and supply of strength and expansion of refrigeration unit.

Publish Date-19-Jul-2012

Due Date-

Phone No-+91-522-2236469

Numaligarh Refinery Limited

Golaghat - Assam - India

Handling, Shifting, Bagging & Loading Of CPC In CPC Warehouse At Golaghat

Numaligarh Refinery Limited, Golaghat, Assam invites tenders notice for handling, shifting, bagging & loading of

CPC in CPC warehouse at Golaghat. Tender document can be collected/downloaded from <http://www.nrl.co.in>

Due Date-

Central Warehousing Corporation

Kolkata - West Bengal - India

Contractor For Handling Of Import/Export Cargo At WC, Petrapole Warehouse

Regional Manager of Central Warehousing Corporation, Kolkata, West Bengal invites tenders notice for contractor for handling of import/export cargo at WC, petrapole warehouse

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Venue: AsiaWorld-Expo Centre

**City: Hong Kong, China
(Hong Kong S.A.R.)**

Date: 05 - 07 September 2012

Asia Fruit Logistica is the leading international exhibition for fresh fruit and vegetable marketing in the Asian Pacific region. With more than 4,100 trade buyers from 60 countries to Hong Kong, 304 exhibitors from 30 different countries presented an excellent overview of the market and made use of an unmissable chance to make important new business contacts.

Disclaimer

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Venue: Riga International Exhibition Centre

City: Riga, Latvia

Date: 05 - 08 September 2012

Riga Food is the leading part of this technology forum. It showcases all kinds of food processing and packaging machines, materials, systems and products under one roof. This is the unique opportunity to meet senior buyers & decision makers from all facets of the user industry.



Venue: Fiera del Levante

City: Bari, Italy

Date: 08 - 16 September 2012

Agrimed is an excellent exhibition that would provide exposure to farmers about the latest agri-input products, technologies, farming practices, government schemes, marketing and post harvest management. The event will be held between 08-16 September 2012.

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Success story of Skylark Group

**From small scale contract farming
to leaders in North India**

Sskylark Hatcheries is one of the leading broiler farming companies in the Northern Indian market. Managing Director, Mr Jagbir Singh, tells Eric Payne about his plans to expand the company's product range in accordance with increasing Indian consumer demand.

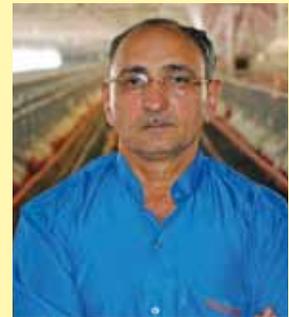
Skylark Hatcheries is a privately owned Indian poultry business. Established in 1985 with a parent

stock of 1,000 birds, Skylark was exclusively involved in day-old chick (DOC) sales until 2000, when its annual production volume was 200,000 DOC. 2000 proved to be a breakthrough year for Skylark with respect to its future direction. It was in 2000 that Skylark expanded into small-scale broiler contract farming and poultry equipment manufacturing – both of which

are divisions that have grown considerably over time.

In 2002, Skylark expanded into layer breeding, and in 2003, the company established its first feed mill with the aim of increasing capacity to meet growing in-house demand for quality poultry feeds. With an initial rated capacity of 200 tonnes per day, the plant capacity was expanded to 400 tonnes per day and then expanded

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Mr Jagbir Dhull
Managing Director
Skylark Hatcheries
jagbirdhull@skylarkhatcheries.com



Feed (Pvt) Ltd., Skylark Equipment (Pvt) Ltd., Skylark Farms (Pvt) Ltd. and Skylark Food (Pvt) Ltd.

Addressing the activities of each of these companies in turn, Mr Singh first tells us about Skylark Hatcheries: “The company has separate hatcheries for grandparent, parent stock and commercials at five different locations in Haryana, Himachal Pradesh and Gujarat. Hygiene and sanitary conditions are maintained inside hatcheries. Proper training is imparted to the manpower at regular intervals to supervise the facilities. Proper egg grading for egg sizes is done with the help of automatic grading machines to ensure uniformity in the flocks. Complementing all other efforts are digital incubators that were indigenously developed by our company and are controlled by special software, which controls all the parameters automatically, used for hatching eggs, which ultimately yield high-quality DOCs. Proper heat retention by hot water inside incubators maintains oxygen levels necessary for optimum development of chicks.”

One of the principal determinants of the quality of broiler meat is the quality of the feed given to the chickens. “Feed, being such a major ingredient, is produced by our company in a fully automatic,

again to its present capacity of 800 tonnes in 2005. Skylark Hatcheries commissioned one another 400 tonnes per day feed mill plant in July 2012, bringing its total feed manufacturing capacity to 1,200 tonnes per day.

The next major expansion for Skylark was in 2005 when it set up a poultry processing plant with a capacity of 1,500 birds per hour. Skylark completed the strategic integration of its activities in 2008, when it commissioned its own technologically advanced commercial broiler farms – all equipped with international nipple drinking, automatic silo-based feeding systems and environmental

control houses to supply healthy and disease-free chickens for the processing plant.

Integrated poultry production Skylark Hatcheries is now renowned as one of the most integrated players in the poultry industry in Northern India. Since its establishment in 1985, the company has pursued a growth plan that has seen it diversify into all poultry-related activities, including grandparent operations, parent stock operations, hatcheries, feed milling, broiler contract farming, poultry equipment, poultry processing and retail marketing. The companies within the group now include: Skylark Hatcheries (Pvt) Ltd., Skylark



computerised auto batch pallet feed mill commissioned in 2003," Mr Singh outlines. "All raw materials (e.g. maize, soya, wheat, corn etc.) are screened and tested in our nutritional lab before going into production to analyse whether the material is fit for consumption or not. This lab is equipped with the latest equipment like the most advanced feed analyser. Free services are rendered to our customer to check the feed quality. We produce feed for grandparent, parent and layer stock and commercial broiler farming stock with each having their respective starter and finisher ranges."

The largest division within Skylark is Skylark Food. With a highly integrated production division capable of processing some three million broilers per batch, Skylark

was able to capitalise on a strategic opportunity to eliminate middlemen from the production chain. "We established a modern, conveyerised semi-automatic poultry processing plant equipped with sophisticated, state-of-the-art imported machinery in a food processing zone near Delhi to provide fresh, healthy, hygienic and wholesome chicken to consumers at reasonable prices," Mr Singh notes. "The plant is located in an industrial area earmarked by HSIIDC and developed and promoted in association with Ministry of Food Processing Industries (MoFPI), Government of India to promote food processing industries in the state.

"The plant is operated by veterinarians, meat technologists and trained supervisors. Healthy

live broilers are selectively taken exclusively from our own commercial farming operations and thus we maintain complete traceability of finished products. The production process involves live bird arrival and hanging, stunning, scalding, de-feathering, evisceration, bird washing, hock cutting, screw chilling, portioning, grading, weighing, packing, labelling, chilling, blast freezing, storing and dispatch. We market fresh chilled and frozen chicken in institutions (wholesale) and retail segments in different pack sizes under the brand name 'Nutrich' in Northern India. Our product range includes whole chicken, boneless chicken (breast and thigh), drumsticks, full legs, wings and lollipops. Our clients include Wal-Mart, Reliance Retail Ltd., Nirula's,



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five-star hotels and franchisee outlets of our company.”

Skylark Equipment keeps abreast of the latest technology, changes and international trends for the scope of improving its poultry equipment products and has contributed many innovative ideas and creative solutions, including electronic digital incubators, hatchery trays, environmentally friendly poultry houses, wire mesh, drinkers, feeders and more.

Skylark is the only associate of Hubbard, France for grandparent operations in Northern India and the appointed franchisee for the sale of all their breeds of parent stock in Northern India. Grandparent operations are strategically located in an isolated and highly bio-

secure area in Haryana. In addition, Skylark has technical collaboration and distribution agreements with international manufacturers of climate control, egg packaging and egg grading equipment from as far afield as Denmark, the Netherlands and Japan.

Nutritional control

Roughly 1,000 people now work for Skylark across a variety of divisions, and that number is increasing every year. “We have very good demand,” Mr Singh enthuses. “The Indian poultry market is expanding at a rate of roughly 10 percent every year. It is estimated that by 2017 demand could double, and that by 2020 demand could be 2.5 times what it is today. With a higher percentage of young people active in the labour market, poultry demand is increasing everywhere in India. Whereas the older generation tends to be very religious, young people are generally less strict and are changing from a vegetarian to a non-vegetarian diet. The third factor that is influencing chicken demand – besides the increasing population and a larger percentage of young people active in the labour market – is the gradual

rise in per capita income. Finally, the number of meat dishes available to Indian consumers is limited by the fact that Muslims do not like pork and Hindus do not like beef. Chicken and seafood are the main options and, of the two, seafood is more costly and less readily available.”

The main reason why Skylark in particular has been and continues to be successful is its investment in technology and highly skilled technicians at all of its many work sites and warehousing facilities throughout Northern India. “Production at our plants is done in accordance with hygiene principles and by implementing standard sanitary operating procedures,” Mr Singh explains. “To ensure food safety at each step, we have implemented comprehensive food safety processes and procedures as per the guidelines of the HACCP (Hazard Analysis & Critical Control Points) system. A fully equipped microbiological lab is set up to diagnose the health and hygiene status of the product and plant. Regular swabs are taken from plant, personnel, tools, tables, trolleys and finished products to analyse

We established a modern, conveyorised semi-automatic poultry processing plant equipped with sophisticated, state-of-the-art imported machinery in a food processing zone near Delhi to provide fresh, healthy, hygienic and wholesome chicken to consumers at reasonable prices



was the use of natural herbal and homeopathic products, usually controllable only via vaccination, to enhance the immunity of birds and prevent coccidiosis disease."

Turning his attention to the future of the business, Mr Singh expresses his desire for Skylark to develop into a fully integrated agricultural company capable of providing all manner of agricultural products on a turnkey basis. "We already have about 33 veterinary doctors who can provide after-sales services to farmers and pass on invaluable knowledge about how to rear their chicks," Mr Singh comments. "Our aim is to provide complete solutions to our customers, with everything from the cages to the climate control system being designed and manufactured in house as part of an integrated solution.

"This will be enhanced by our ability to rear drug-free chickens and our strength in farming with the latest technology. There is a major live bird market in the north where we are able to sell our drug-free chickens at a premium price. And we promote environmentally friendly operations as well – we do not throw out any of our waste, we use it to produce energy and to produce organic manure. These are some of the achievements we are proud to be able to speak about," he concludes.

the bacterial load and take the corrective actions. Automation of the production process also helps to maintain proper

feed formulation and pelletisation, further ensuring the homogeneity of all ingredients and reducing microbial load, if any, by steam treatment. Nutritional experts take care of the nutritional value of the feed."

Skylark has already procured a further 300 acres of land for the expansion of its completely integrated poultry and agriculture business, growing fruits and vegetables on the same site.

Natural and environmentally friendly

Quality and innovation are the two key attributes that Mr Singh

stresses when he talks about Skylark's unique positioning in the Northern Indian poultry market. One of the most innovative projects undertaken by the company was an initiative to rear a healthy antibiotic-free chicken. "Taking consumer health as the prime motivator, Skylark took the bold step to start working on antibiotic-free chicken. With dedication, hard work and continuous research, Skylark became the only company in the world to produce a chicken raised without using antibiotics, anticoccidial drugs and with a chemical-free diet. We are complying with world quality standards and assure our consumers we will continue to comply with the same in the future. The secret of raising the drug-free chicken



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Voices

Agriculture loan target in 2011-12 was set at Rs 4.50 lakh crore but exceeded to Rs 4.75 lakh crore. In 2012-13, the target had been set at Rs 5.75 lakh crore.

-P Chidambaram, Finance Minister

We have brought new schemes to boost growth in Uttarakhand with an estimated cost of Rs 250 crore. We have also held talks for increasing investments and FDI in the state.

-Anand Sharma, Union commerce, industry and textiles minister

Chief Minister Mamata Banerjee on August 1 review meeting found potato prices have not eased in line with other vegetables despite requesting cold storages to release potato. So, she has directed to stop potato export from the state unless it comes to maximum Rs 12 a kg

-Arup Roy, Agri Marketing Minister, West Bengal

What we want to focus is investment credit to boost agriculture. Last year, the investment credit disbursed by the banks was around Rs 3,000 crore and this year, we are looking at around Rs 25,000 crore. No mandate has been given, only instructions were given to the banks.

-M Narendra, Chairman and Managing Director, Indian Overseas Bank

The supply chain cannot be outsourced, it is the heart of the business. We are currently working with 15,000 farmers now but, like Walmart does in China, we want to work with a million farmers.

-Rob Cissell, CEO, Reliance Retail Ltd

Unless the government cut its flab, spending on unproductive plans and instead invests in creating agriculture infrastructure like smaller dams, warehousing, cold storage and freezing exports to make farming profitable, there is no hope for farmers.

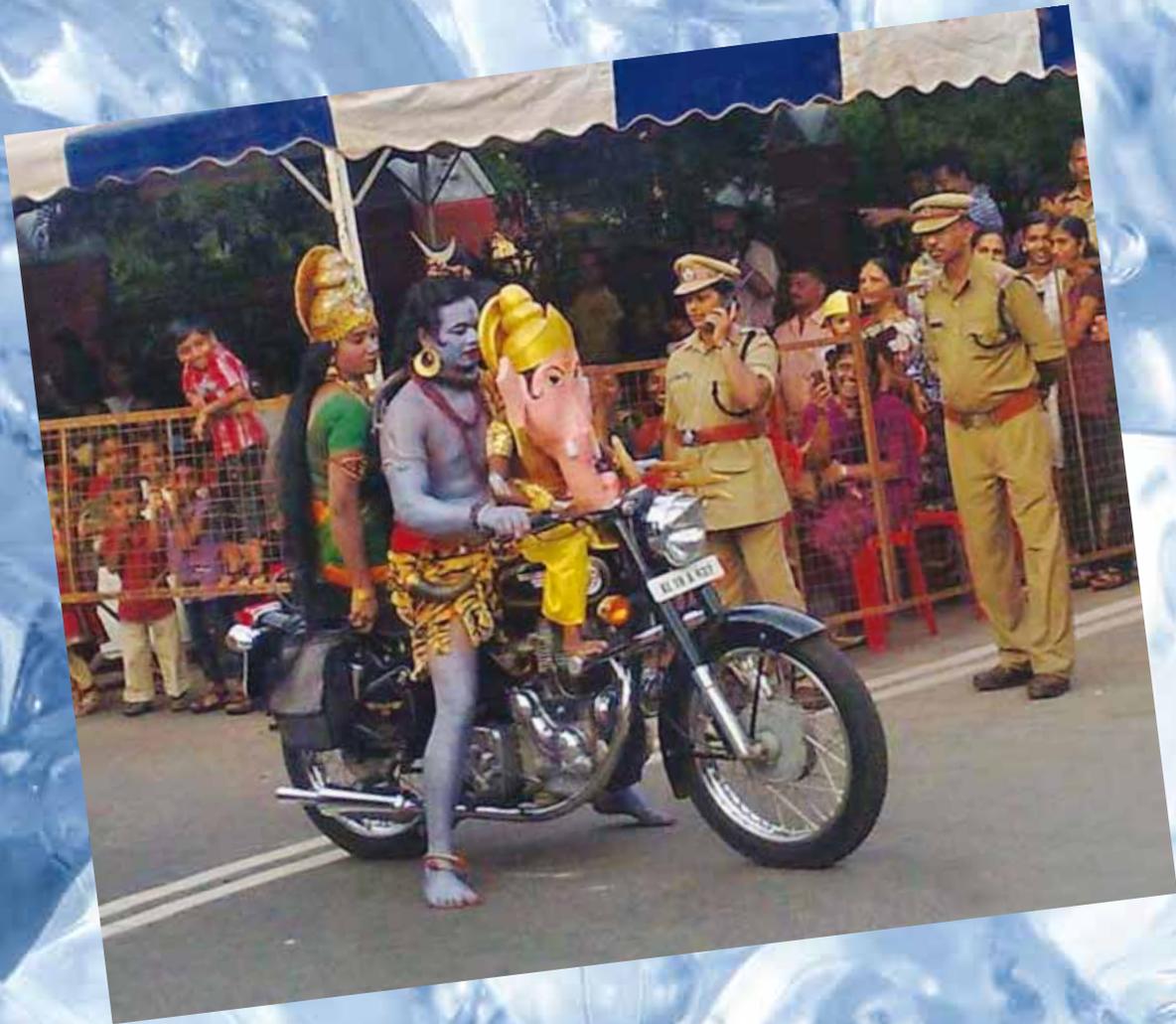
-Ram Nevle, Leader, Shetkari Sanghatana

While globalization of the world food, flower and pharmaceutical markets is creating new business opportunities, heightened risks are also emerging along the logistics and transport chain

-Alex von Stempel, Director, Cool Logistics Resources.



Frozen Frames



Happenings!!!



SUPCO Bishnupur: The participants attending to the speakers



SUPCO Bishnupur: Participants raising their doubts to the experts



SUPCO Bishnupur: Certificates and Plaques being distributed to the attendees



Engineers Training Program IV: Mr Bijay Kumar, MD, NHB and Dr Sharma, Course Director and Director, NHB addressing the candidates about the course modules and objectives



Engineers Training Program IV: The speakers talking to the candidates



Engineers Training Program IV: Certificates distributed to the candidates after successful completion of the two weeks training program



SUPCO Tarakeshwar Batch 1: Participants discussing problems with the experts



SUPCO Tarakeshwar Batch 1: The experts being felicitated



SUPCO Tarakeshwar Batch 1: Participants during the field visit



SUPCO Tarakeshwar Batch 2: Experts addressing the participants



SUPCO Tarakeshwar Batch 2: Potato storage in the cold storages



SUPCO Tarakeshwar Batch 2: Participants being given certificates and plaques after completion of program



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