MADE IN INDIA WHITE GOLD FOR GLOBAL MARKETS

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Purity of contents, nutritional value, microbiological safety and shelf life are prime considerations for every consumer of dairy foods worldwide. Immunologically strong population of native breeds of dairy animals, progressive dairy farmers and number one position in milk production are our unique assets to confidently face the emerging global competition. Visionary goals like zero defect, zero effect and make in India projected by Hon. Prime Minister are not impossible dream slogans that cannot be translated in to reality by us as prudent dairy professionals who love their motherland.

As per critical "S.W.O.T." analysis of dairy business in India, our strengths and opportunities definitely outweigh the threats and weaknesses that can easily be resolved with our collective professional wisdom and resources available with premier dairy institutions like N.D.R.I., N .D.D.B. and I.D.A.

Based on in-depth research carried out by our Mission with the help of our associates in Canada and India, we have identified following "WEAKNESSES" that are blocking our way as hurdles to upgrade the status of our country from number one milk producing country to number one milk exporting country:-

1. Procurement of absolutely pure milk without any manipulation, adulteration or dilution.
2. Ever increasing high gap between farm gate price and consumer price of milk.
3. Purity, microbiological safety and shelf life of pasteurized milk and dairy products not strictly conforming to international quality requirements.
4. Undesirable dominance of unethical middlemen in the value chain.
5. Lack of product traceability and financial accountability in business transactions.

ROOTCAUSE ANALYSIS & IMPACT OF THESE WEAKNESSES ON TECHNO-ECONOMICS OF DAIRY BUSINESS

1. Procurement of absolutely pure milk without any manipulation, adulteration or dilution:

Most of the advanced dairy countries now dominating the global markets, produce only cow milk through commercial dairy farms. Dairy plants in these countries do not purchase raw milk on two axis basis and have no problem in procuring raw milk on commercial scale without any manipulation, adulteration or dilution. Freezing point of cow milk of standard composition (3.50% Fat & 8.50% S.N.F.) is measured by refractometer index reading using cryoscope and used as reference benchmark. Presence of added water can be accurately measured and evaluated with this technique, while purchasing raw milk .Undiluted pure milk is purchased at relatively higher rates by dairy plants processing and marketing pasteurized milk. Diluted milk is purchased at discounted price (after due deduction for added water) and used for product manufacturing. As such there is no cost benefit or hidden gain to seller for intentional dilution in raw milk. Due to stringent regulations against adulteration being effectively implemented by food safety authorities, chances of adulteration have been virtually ruled out.

Countries like India where we have both cows and buffaloes, mixed milk is being traded using 60:40 two axis formulae. Corrected lactometer reading is measured for each milk purchase transaction besides fat testing to determine value of total milk solids (Fat+ S.N.F] by calculating S.N.F. using the specified formula i.e. S.N.F. = C.L.R. /4+ 0.2x Fat +C.L.R./100.

Exploiting the practical limitations and correlated problems of purchasing milk using this method, unethical middlemen in milk procurement chain over a period of time have devised perfect ways and means to syphon out up to 20 % cost of raw milk as hidden gain for themselves by diluting mixed milk and manipulating milk composition.

There are major variations in composition of standard buffalo milk and cow milk i.e. total milk solids, S.N.F.: Fat ratio, Specific gravity and real monetary worth per Kg. milk or per Kg. milk solids. Moreover specific gravity of Fat & S.N.F. components is significantly opposite to each other so many complex permutations and combinations are possible for unethical middlemen to dilute mixed milk for manipulating milk composition causing hidden loss to purchaser. Unfortunately for dairy business entrepreneurs, these hidden losses due to dilution and manipulation in milk composition remain undetected with conventional milk billing system and software being used by one and all in India for releasing milk payment to suppliers.

N.D.R.I. evolved “Hansa Test” few decades ago to solve complex problem of dilution in buffalo milk and manipulating diluted B.M. as cow milk or vice versa. This test can indicate if cow milk is mixed with buffalo milk but it cannot spell out exact % of actual cow milk in mixed milk. Further research on this subject could not be conducted so this chronic problem of our industry still remains unresolved.

Actual case studies of digital hydro-analysis of milk purchase transactions of premier dairy institutions in India was carried out by our Mission associate in Canada. Results of these analysis indicated loss of crores of rupees to these institutions only due to dilution and manipulation (assuming no adulteration other than added water used for manipulating milk composition). We shared these results with senior management of these institutions but no one expressed any disagreement or doubt regarding accuracy of our analytical calculations.

Unprecedented increase in milk adulteration in our country during the last few decades is mainly due to this core issue and unresolved complex problem. Export of milk and dairy products from India to neighbouring countries would grow by leaps and bounds, if we evolve arithmetically accurate and logical solution for this complex problem. All dairy plants especially those having sound infrastructure to procure raw milk directly from milk producers will have no difficulty in procuring pure milk, thereafter, for production of milk and products strictly meeting with international quality requirements.

2. Ever increasing high gap between farm gate price and consumer price :

Due to steep increase in the cost of material inputs, manpower, fuel, electricity, packing materials and marketing etc. total milk handling costs using conventional processing systems and techniques for dairy business operations have increased manifold. In order to compete with global players we must invest in research and development to evolve new concepts, innovate processing/ packaging techniques and introduce cost effective marketing strategies. India now imports many fast moving consumer goods from neighboring countries like China that besides meeting customer needs are available in the market at prices much lower than similar goods produced by our business entrepreneurs using conventional /obsolete techniques. Gap between consumer price and producer price can only be reduced either by minimising costs or optimising value addition.

Our global competitors have already introduced many high margin value added products in India whereas majority of our commercial dairy plants especially in private sector still continue to focus only on conventional product mix like Skimmed milk powder, whole milk powder, Dairy whitener and Ghee.

We can only make milk production a sustainable business activity for rural masses and retain/improve our market share in home and export markets by drastically reducing costs and optimising revenue through value addition. In order to achieve our Cherished goal of "Make in India" we need tremendous efforts on both these fronts.

3. Purity. Microbiological safety and shelf life of pasteurized milk and dairy products not strictly conforming to international quality requirements:

Common features of all such countries now dominating global markets irrespective of their milk production level as compared with our country are quality, productivity and reputation of their popular brands. We can only realize our prime goals of playing dominating role and to win gold in dairy Olympics by ensuring that whatever we produce in our country either for home consumption or export is absolutely pure, microbiologically safe and having shelf life not less than that of our global competitors.

As per our research findings besides initial quality of raw milk, post processing contamination, use of packing materials without proper sanitisation and improper storage conditions for products that need refrigeration are mainly responsible for our pasteurized milk and dairy products not strictly conforming to specified international quality parameters. It is a matter of deep concern for all of us managing dairy business in India that there is hardly any dairy plant marketing pure pasteurized milk having shelf life of two to three weeks like our counterparts in global markets. We must take up this issue on top priority agenda and make all out efforts to create centres of excellence in the form of model dairy plants to provide live demonstration by ensuring that pasteurized milk and all dairy products leaving such units strictly conform to international requirements. Mandatory third party product certification by internationally accredited quality testing laboratory for all dairy plants (without exception) would be a right step in the right direction so as to improve our image and status in global markets.

4. Undesirable dominance of unethical middlemen in the value chain:

Cost of raw milk has more than 80% contribution in the overall cost of dairy business in our country. Unfortunately majority of commercial dairy plants especially in the private sector have delegated this all important function of milk procurement to network of middlemen now dominating the value chain. Ironically these middlemen are neither scientifically trained nor willing to follow ethical trade practices while handling microbiologically sensitive food item and valuable material input for our dairy plants to churn out best quality dairy products intended to exceed customer expectations besides conforming to international quality norms.

There seems to be no alternative for dairy business entrepreneurs in our country but to discard the prevalent system of milk procurement. They must switch on to well documented fool proof milk procurement system for procuring absolutely pure raw milk on commercial scale directly from milk producers maintaining clear cut transparency and financial accountability for dilution and manipulation (hidden losses) while milk remains in transit between milk producers and dairy plant.

5. Lack of product traceability and financial accountability in business transactions:

Advanced dairy countries follow a system of mass production of milk by registered dairy farmers who maintain large herds of dairy cattle in their dairy farms.

Government regulations like ban on sale of raw milk by dairy farmers, strict monitoring of raw milk quality and transparent business transactions between milk producers and dairy plants ensure assured quantity of pure milk as per their requirements throughout the year. Once raw milk is accepted by concerned dairy plant then total responsibility for maintaining clear cut product traceability between dairy plant and consumer is transferred on to that organisation.

On the contrary in countries like India where due to socio-economic considerations we have no choice but to encourage production of milk by masses. Majority of these people are marginal or land less milk producers. Keeping in view literacy level and weak financial status of this rural segment of society, we must continue to follow this policy so as to provide sustainable income and employment opportunities for them. More than 70% milk reaching our dairy plants is being contributed by them. Under these conditions only well managed dairy plants having well documented fool proof system and well organised infrastructural network would be able to procure required quality of pure raw milk as per their business needs directly from milk producers.

Innovative concept and cost effective documented system that can ensure perfect product traceability and financial accountability in all business transactions between milk producers, dairy plants and consumer is need of the hour for our country for upgrading raw milk quality, productivity and profitability of dairy business.

SCIENTIFIC INNOVATIONS AND LOGICAL SOLUTIONS EVOLVED BY OUR MISSION ASSOCIATES:

Good news for premier dairy institutions and ethical dairy business entrepreneurs in India is that our Mission associates have successfully evolved scientifically logical, arithmetically accurate and easy to implement solutions for these core issues and unresolved problems mentioned above. Pilot project case studies undertaken and field trials conducted by our associates in India and abroad to evaluate effectiveness of these solutions have produced exceptionally encouraging results.

- Our Mission associate M/s Improvement Innovations Unlimited Inc. Canada has successfully evolved software solution for complex unresolved problem causing hidden loss of crores of rupees to dairy business entrepreneurs in South Asian countries where mixed buffalo and cow milk is purchased on two axis basis. Software has been designed for carrying out digital hydro analysis of mixed milk containing buffalo milk, cow milk and added water (intermixing in any ratio for these components). It will clearly indicate quantity of standard buffalo milk (6.50% Fat, 8.84% S.N.F , 15.34% total milk solids corresponding to 29 C.L.R.) and Standard cow milk (3.50% Fat, 8.50% S.N.F. 12% total milk solids corresponding to 30 C.L.R.) and amount of added water used for manipulating mixed milk composition. Only software input information required for carrying out this micro level investigation and analysis is conventional information already being collected and compiled by milk procurement department and supplied to milk billing unit of finance department for preparing milk bills for payment to suppliers.

Hidden loss in milk purchase transactions due to manipulation and dilution (Assuming no adulteration except added water used for manipulation in milk composition) can be accurately calculated with accuracy up to decimal points.

This software solution will serve as an accurate and effective tool in the hands of management to assess, control and eliminate hidden loss in milk purchase transactions.

Accurate analytical identification of a decease is only first right step towards recovery from a chronic ailment. Importance of consulting a specialist for medical prescription or surgical operation cannot be undermined to achieve long term health objective.

Besides providing a useful software solution, our Mission associate has also created a unique documented system for procuring absolutely pure buffalo milk, cow milk or mixed milk without any manipulation, adulteration or dilution through dedicated network of ethical milk producers or service providers fully accountable for supplying raw milk meeting with specified quality requirements and financial loss if any due to dilution and manipulation. Results of field trials and actual case studies undertaken by us while implementing this system indicate that it is possible to procure undiluted (B.M.+C.M) containing more than 15.34% total milk solids and C.L.R. > 29 on commercial scale with complete control on dilution and manipulation. Under the conditions now prevailing in India it is, therefore, quite possible to procure absolutely pure milk suitable for production of pasteurized milk and value added products strictly conforming to international quality requirements.

- We have conceived an innovative farmer friendly and consumer friendly business plan for our country for pasteurized milk supply in the home market. It is supported by green technology, cost effective processing, recyclable packing materials and consumer friendly distribution of milk. Implementation of this scheme can reduce total cost of milk handling by more than 50% from prevalent levels. Resultant cost savings could be shared appropriately between participating milk producers, consumers and ethical dairy business entrepreneurs.

- Organically produced pure buffalo milk or cow milk of immunologically strong native breeds of dairy animals could be projected as preventive health care tonic and our premium value added product for global markets. Our Mission associate has successfully conducted field trials to produce pasteurized /sterilised milk in India meeting with international quality requirements for purity, microbiological safety and shelf life.

  Scientific innovative techniques mentioned above would drastically reduce total milk handling costs and help us to optimise profitability and export potential of dairy business.

- Keeping in view unresolved complex problems in procuring absolutely pure milk under conditions now prevailing in India as the main reason and post processing limitations of milk processing dairy plants in India our associate conducted field trials to procure/process/pack pure buffalo and cow milk produced in India. Pasteurized milk and sterilised milk produced by our Mission associate using innovative milk processing technology attained shelf life of three weeks and six months respectively besides meeting with other international quality requirements.
  We are now confident that similar results could be replicated in well managed dairy plants procuring pure milk and implementing latest I.S.O. concepts in letter and spirit.

- We conducted deep probe and investigations to know as to why commercial dairy plants in India prefer to procure raw milk through milk contractors who skillfully manage to control network of middlemen. They do not miss any opportunity to exploit needy milk producers in all possible ways. Underlying main reason that came out from this study is that although not only quality of raw milk is much better and landed cost of milk remains lower in direct milk procurement through actual milk producers but due to unresolved techno-commercial problems relating to hidden losses due to manipulation, adulteration and dilution it becomes difficult to manage quality and landed cost of milk.
  We successfully introduced and implemented innovative concept of "APNI DAIRY" (informal cooperative network) for milk procurement in a commercial dairy plant and procured nearly one lac litres milk per day having more than 15.34% total milk solids and incurring only nominal hidden loss in milk purchase transactions.

  Our Mission feels that innovative idea of informal consumer cooperatives establishing direct fly over link between commercial dairy farmers and urban consumers would be yet another step in the right direction to control adulteration in milk and neutralise undesirable dominance of unethical middlemen in value chain. Pilot project based on this concept is being successfully implemented by our Mission at Chandigarh for the last more than three years.

- Due to wide spread mistrust and menace of adulteration in milk there is urgent need to launch consumer awareness programs with the prime objective to empower them to test adulteration in milk through simple platform tests that can be conducted in consumer kitchen at nominal expense. Our Mission has also conducted successful trials of this concept on pilot scale.

  Our Mission associate is working on yet another research project that will ensure 100% product traceability from cow to consumer(C to C). With our success in this mission sterilised milk having shelf life of more than six months contained in a glass bottle with a label indicating identity tag number of cow, Unique identity code number of dairy farmer, time and date of milking the animal, milk processing time and date besides other statutory information required under state regulations would become a reality. Scientific innovations like this would help us to open new export avenues for our value added milk formulations and allied dairy products.

  Our Mission is quite optimistic about future of dairy business in our country and we would be too willing to share our research findings with ethical dairy business entrepreneurs and also help them for their dairy development programs that would harmoniously balance the interests of needy dairy farmers, health conscious consumers and ethical dairy business entrepreneurs.

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