

How to improve milk productivity in India to meet vision 2022 as per national dairy plan. Interestingly India will be celebrating its 75th year of independence at that time.

Consolidated reply on suggestions as given by registered members of “The Second Innings from India and abroad” : It is an update on Oct 15 and we shall be releasing the updates on monthly basis for the quick comments and further deliberations by the respected Indian dairymen with an intent to contribute their best back to the society.

Pankaj Shah

Suggestion: To start with make them know about “How Important you are for the society”/ “why are you doing what you are doing”/ “What is in it for you and the society at broader level”

A P Sachdev

I am a vet by profession & have been involved in Livestock promotion since 1966. Myself & my son-Amit Sachdev ,both are managing our two companies-Blue cross consultants & Techpro India Private Ltd.

I have worked for 16 years with US Grains Council with a mandate to work in the area of Livestock Development in India & now the same work is being handled by my son-Amit Sachdev.We are also on retainership with World Wide Sires Inc. USA & are promoting to bring in frozen Semen & Frozen Embryos through the State Govts & Livestock Dev boards including the Cooperatives & Farmer Groups who are involved in production of milk & higher profitability through Breeding Programs with HF & Jersey Breeds.

Through the US Grains Council we have done the field work in the following areas:

- * Clean Milk Production practices
- * TMR (Total Mixed Rations)
- * Silage Production
- * Male Buffalo rearing for prime Meat & many more areas

We have in stock few publications, which we produced ourselves through USGC.

- *Young Stock Rearing Guide
- *Feeding & Management of Dairy Animals for Higher Profits
- *Efficient Dairy Production for Higher Profits
- *Feeding Dairy animals for Higher Profits

Besides we also have projects & promotion for Poultry Farming, Goat Rearing which

Knowledgebase series by Suruchi Consultants

are in great demand.

Dr. Captain Tanweer Alam

It was pleasure to get to know about the activities you are promulgating through your organization.

I for one fully endorse your views and anything for improving the situation in dairy sector cant be done without doing something substantial at the bottom of the pyramid of the dairy farmers , because they are still holding the major stake in the scenario of the dairy milk production in India, which you are already well aware of.

We at Natural Remedies have also well understood this fundamental and we are pleased to share with you that we had rolled on one project called RBE (Rural Business Entrepreneur) project in Gujarat about 2 years back and a brief of the concept of this project is attached in the ppt. We are at present having about 210 RBEs in Gujarat state (in just 5 Distts) and we plan to scale it up to more than 5000 RBEs in nest 4-5 years.

The prime objective of this project is to help improve the awareness level of the village level dairy farmers for better care and management of the dairy animals and thus improving the per animal productivity.

We are seeing some semblance in the objective of both of us and we can be pleased to be associated with your thought for taking up this drive further.

Dr C.B.Singh

I appreciate the initiative. This could be first step forward in not only enhancing the productivity but the production of CLEAN Milk at grass root level.

It will be great if your platform shall strive to provide basic knowledge to these small dairy farmers on disease prevention , Animal hygiene and A.I. with good quality semen.

Derek Davis

The small steps you can take to improve let down and promote good milking routines are as follows, correct machine settings including pulsation rates and ratios, vacuum settings and correct liner choice are also small steps for incremental growth....

1. Only Milk Clean Teats Ensure excellent cow comfort, bed well, clip excessive hair, use water sparingly and clean teats thoroughly with individual medicated towels.
2. Fore Strip Every Teat Check carefully for mastitis while massaging each teat for optimum oxytocin release.

3. Pre Dip If Required Reduce numbers of environmental bacteria with a fast acting pre-milk teat dip.
4. Dry Teats Thoroughly Use a disposable paper towel for each cow for thorough and efficient drying
5. Attach And Position Clusters Carefully Attach cluster at 90 seconds after stimulation, avoid uneven milk-out always maintain good cluster position.
6. Remove Clusters Carefully Soon After Milk Stops Flowing Avoid liner slip as milk flow slows and remove teat cups after vacuum shut off.
7. Dip Teats Immediately After Cluster Removal After cluster removal immediately apply a good quality dip over the lower third of each teat.
8. Use A Loafing Area After Milking Ensure parlor exit is clean and cows remain standing for at least 20 minutes after milking. For more information on liner choice visit our website www.milkrite.com

Kashyap Bhatt

We are pleased to inform you that we are one of the 26 winners of World Bank's "Development Marketplace" DM2009. Please visit Project# 4561, India: Portable Solar/Wind Greenhouse to Grow Fodder through hydroponics system for Sustainable Dairy Farms.

Please visit:

- <http://siteresources.worldbank.org/DEVMARKETPLACE/174515-1257552373887/22389245/index.html>
- <http://dirt.asla.org/2009/11/13/world-bank-development-marketplace-selects-26-winning-climate-change-adaptation-projects/>
- www.greenfield-hydroponics.com for the technical details and applications of US & Canadian patented solar & wind powered portable greenhouse for the countries having shortage of agriculture land, water, electricity or ambient climatic conditions are not favourable to grow field crops due to global warming. We also manufacture Solar & wind powered Ozone water purification systems which provide 99.9% germs / bacteria free water.
- www.greenfield-ngo.org for the Micro Finance projects we have developed to create employment for women, marginal and landless farmers. We provide community based projects or for individual family in the rural areas.

Please be advised that:

- We are registered supplier of United Nations and its subsidiaries.
- Our technology qualifies for CDM funds.
- Our turn-key projects are techno-economically viable for bank finance in absence of any grants or subsidies available from local governments.

Please let me know your comments and count me in for a second innings.

Prof Zile Singh Rana

"SERIOUS ATTEMPTS are needed. Holistic approach is the way. Introduction of meritorious bulls, improved feeding, management, reproduction & health care adopting latest technologies & planning are the facets. MULTISTAGE SELECTIO., In situ conservation & improvement models like establishment of farms, involvement of development agencies, associated herds & farmers maintaining breeds. Bull mother farm for meritorious bull production. Open nucleus breeding system is suggested."

Subodh Kumar

- 1. India has the world's oldest domesticated pasture cow tradition. Modern scientific researches and Indian belief both confirm that Milk of a cow of Indian breed, fed on greens is indeed nature's best gift to mankind.**

Modern researches have confirmed that :-

1. 1 Grass fed Cow's milk is very rich in EFA' (Essential Fatty Acids) viz. CLA's (Conjugated Linolenic and Linoleic Acids). Such milk has low saturated fatty acid content. (Same is true for beef also .) This is universally accepted as a strategy by USDA, and EU Lippene project. Omega 3 is the more important constituent of Grass fed Cow's milk, particularly for brain and eyes. Cows of Indian breeds (Bos Indicus) are recognized as producers of A2 type milk , as against cows of HF(Holstein Frisians) Bos Taurus group that produce A1 type of milk . (World Dairy industry led by NZ farmers - the leaders in this field- are reported to be implementing a program to convert all NZ herd to A2 type milk producer by stopping cross breeding with HF A1 semen. (Could the resulting low world demand for HF semen be the reason for very attractive generous offers for supply of HF semen by USA to India, that Indian Govt. has very quickly agreed to import?)

2. Opportunity & Challenge

This presents for India a great opportunity to build on the tremendous strength of our nation, already the largest producer of Milk in the world.

- 2.1 Indian breeds of cows represent the world's largest A2 milk producing herd.

Traditionally Indians have been raised on A2 Milk for thousands of years. That accounts for excellent health and mental abilities of Indians.

- 2.2 In preference over cross bred cow's milk or buffalo the Milk of Indian breeds of Cows enjoys excellent USP in India. This presents tremendous commercial opportunity.
- 2.3 Per capita consumption and availability of liquid milk in India is about the lowest in the world and has a fantastic Demand Potential. This is where a tremendous challenge to Animal Science experts of India, and the greatest economical development opportunity for India exists.
- 2.4 Vitamin D consideration:
Indian Cows love outdoor basking and grazing in broad day light. As a result the milk of Indian Cows is rich in Vitamin D. Buffaloes being black and with hardly any fur coat cannot stay in open sun for long time. Buffaloes by habit like to stay under water or in shades to keep cool. Accordingly Buffalo milk has practically no Vitamin D. With modern life style people stay more indoors and do not get adequate exposure to sunshine. Vitamin D deficiency is a modern life style curse in a way. In USA fortification of all dairy milk by Synthetic Vitamin D is mandatory. In India there is no such stipulation for dairy milk, although the Indian Council of Medical Research has established that Indians also suffer from Vitamin D deficiency in a big way.

Cow's Milk being naturally Vitamin D enriched is a very significant fact of great public health significance and also a commercially important matter.

PROPOSED STRATEGY

Marketing

3.1. A2 Milk

Milk of only Indian breeds of Cows, (Confirmed by laboratory type testing as being free from BCM 7(Beta Case Morphine 7) from a DNA tested herd, for A2 milk should be supplied as separate Milk, not mixed with Buffalo or A1 HF milk. States such as Gujarat that produce large quantities of natural A2 Milk from its Gir cows fit excellently well to take a lead . Pure milk of Indian breeds of Cows commands very good premium prices in India.

- 3.2 **Low fat A2 milk** as the premium grade A2 milk, can command very high premium prices and cater to better informed clientele in India. EU under its Lipgene project is conducting research simultaneously in 21 laboratories in Europe to produce designer's natural milk that has low total fat and high EFA content.

Indian cows were traditionally pasture fed. (Stall feeding of cattle and concentrated prepared feed is a rather recent development from Indian point of View.)

Cows raised in Pastures as reported in Kautilya's Arth Shastr had total fat content of less than 1%. This is when Cow's Milk was truly Amrit- Nature's Nectar- a preventive and cure for all self degenerating diseases of human body. Taking guidance from our ancient cow management practices in Vedas and other Sanskrit texts, it is not

difficult for us in India to produce within foreseeable future, a 'Designer's Milk' with low total fat content. **By reducing fat content, the milk yield also goes up.**

Indians over thousands of years had enjoyed such low fat high EFA, A2 type Milk of Indian cows. The high Omega 3 content of this milk explains the secret of the well recognized highly developed capacity of Indian brains in the world.

Low in total Fat & high EFA Milk of Indian breeds of Cows will be the most highly prized A2 milk from commercial considerations.

3.3 A2 Milk Based Infant food.

A2 milk is considered most important for baby food and milk formulae. This presents India with an excellent commercial opportunity to become a world leader in Infant milk food supplies.

4. Research & Development Work

It is conceded that Indian breeds of cows are in general very low milk producers. India thus faces extreme shortage of Cow's Milk. This situation can be changed over a period of time with sincere efforts, by improving the green fodder availability and breeding with pedigree Bulls. ET and AI in controlled manner can also be of great help.

4.1 AI as Breeding Practices:-

AI (Artificial Insemination) is indeed a marvel of modern veterinary science. In US success rates of AI exceeding 80%, as also same cows delivering more than ten calves in good Dairy farms is not an exception.

4.1.1 AI Experience in India

With best of our efforts in last 60 years, it has not been possible to achieve overall AI success rates better than 25% in India. Economic hardship of farmers due to extended dry period on account of deficient AI delivery has never been assessed by any body in India.

4.1.2. Repeatedly failed AI cattle become infertile. Fibroids caused by lack of professional expertise of the AI provider staff, after a few calving renders good fertile cows incapable of future conception. Loss of good milk yielding cows due to infertility has also never been assessed in the Indian Animal Husbandry practice. By poor AI delivery apart from tremendous burden on farmers in feeding cows for the extended dry period, excellent milk cattle is being turned infertile. **In this way AI is helping the cow slaughter industry.**

4.1.3. Inbreeding with AI is a well recognized problem in developed world Dairies also. In India as it is we have a lot of inbreeding trouble, AI is being performed for better cattle. But big potential loss of good cattle by inbreeding is inherent in AI.

4.1.4 - Spread of IBR by AI is a well established fact.

IBR (Infectious Bovine Rhinotracheitis) has been an uncontrollable Zoonotic disease. Indian veterinary experts have the data of 20000 animals from Military Farms,

Gaushala, Two Coordinated projects and 50 PG studies on this disease from India in support of this observation. It is reaching human population in the form of Swine Flu, Dengue fever, H1N1 infection, Common Cold and Cough spreading like epidemics in colder seasons.

4.1.5. A more practical approach to AI in Indian context is not to overlook the advantages of Natural breeding methods.

Overall total cost of natural breeding service under Indian conditions is far more advantageous than AI.

4.1.6. AI and ET –Embryo Transfer – techniques can be practiced under controlled expert institutions and larger Goshalas as support for the Field Services.

4.1.7. Govt. should consider shrinking its present infrastructure on AI straw production centers, and AI services, by taking a very pragmatic view of their performance in the last many decades under Indian conditions. Saving to the national exchequer and hardships being faced by poor cattle owning farmers will be very significant. Large number of good cows that become infertile due to poor AI delivery practice will also be saved.

4.2 Cross Breeding

In India large number of identifiable phenotypes of Indian breeds of cows had evolved to suit the natural conditions, over the last thousands of years. Let us not consciously loose this nature's precious gift to our country. In view of the modern researches about A2 milk, it will be prudent on the part of our Government to stop cross breeding with A1 type mainly HF semen.

4.2.1 Supply of Natural Breeding Bulls.

Government cattle research institutions should be encouraged to share with Goshalas and similar institutions, better pedigree A2 milk producing calves to be raised as good natural service Bulls.

The present practice of culling the unpromising Cows, Heifers, Male calves and Bulls by periodic disposal by Govt. institutions, should be reformed to share good young male and female stock with range and extension services for promoting breed improvement in the country.

4.2.2 It is our experience that there is great shortage of good natural service providing bulls in India. This can be met by providing good pedigree male calves for being raised as Natural Service Bulls. Goshalas and Gosadans should be actively involved in this Bull development work.

5. Feed Strategies

5.1 Green Fodder, Pasture is best

Modern veterinary research has been devoting great efforts to the subject of animal nutrition. Development of various concentrated feed formulations has been propelled by Dairy Industry interests. In Indian context hardly 15% of Indian Milk is in the organized Dairy Sector. It is not logical to let this 15% interest dictate the 85%. Modern Veterinary science can also benefit by understanding traditional cattle rearing practices of India. Hardly any attention is paid to the fact that Indians have the world's oldest continuous animal husbandry tradition.

5.1.1 Green Fodder and self fed pasture practice results in the lowest cost of milk production and at the same time healthiest milk for human nutrition – low in total fats and high in EFA contents.

5.1.2 A very cautious approach is also required to develop alternative cattle feed formulations based on preparing artificially extracted and developed cattle feed constituents. It is very difficult to assess the long term usage effects that may prove harmful in the long run.

5.1.3 Indian knowledge based on thousands of years of practice has always advocated pasture based green fodder. The latest researches and practices in NZ, Lippene project in EU, and researches of Prof. William A. Albrecht of University of Missouri, Columbia are there to support this proposition.

5.2 Low Milk yield Green Fodder Connection.

Experts have been advising about effects of Heat Stress and exotic cross bred cattle as the main reason for wide annual fluctuation in milk productivity of cattle in India. But even the Indian breeds of Milk cows have been observed to show very similar annual milk production variation. A study of our closely monitored herd over last ten years indicates that loss in milk production of Cattle in India is very closely related to non availability of adequate good Fresh Green Fodder through out the year. Just by making green fodder available throughout the year a minimum 20% increase of milk production can be achieved. To support this hypothesis the milk production variation over last ten years in our Goshala is attached.(Annex-1)

5.3 Enhancing Green Fodder Availability

Problem- land availability: This indeed is the greatest challenge for multidiscipline innovative research intervention for experts and business houses to take up. This also presents a win win opportunity for every body. Tremendous social, political and commercial advantages that will also result from success of this strategy can hardly

be exaggerated. Lot of research in traditional fodder crops and grasses has been going on in many research institutions. But pressure on cultivable land to produce food and horticulture crops for human consumption makes green fodder cultivation very uneconomical use of cultivable land. Almost total loss of Pastures makes it very difficult to depend on grasses. Vagaries of weather, shortage of irrigation water also affect green fodder availability.

5.3.1 Development of perennial leaf Fodder Trees for harvesting by pollarding/coppicing should be paid more attention, in different climate zones of India.

5.3.2 Development of Blue Green Algae such Azolla should also form an important constituent of green fodder for cattle.

5.3.3 Hydroponics Fodder:-

Indian experience with Hydroponics fodder with imported Fometa devices nearly twenty years ago due to inept handling, was given up as a bad dream. World over Hydroponics fodder is considered a very important Green highly nutritive, high digestibility cattle feed alternative strategy. By vertical growing it improves land use nearly 200 times and reduces irrigation water requirement to mere 5% of normal cultivation and completely immune from vagaries of weather.

We can develop our own Hydroponics Fodder device designs in India to suit various climate zones. As practiced abroad, for India it is not necessary to use air-conditioning and artificial lighting to grow Hydroponics Fodder. It is also possible to avoid use of chlorine as sanitizing agent against fungus problems. Combined with a Biogas plant a Hydroponics Fodder system is a completely green energy based fodder production method for Indian conditions. Just two kg/day of any coarse grain can provide a complete highly digestible & nutritious balanced cattle feed for an average Indian cow, through out the year.

Post Script:-This submission is based on over 15 years of past practical experience at Maharishi Dayanand Gosamwardhan Kendra located in East Delhi. We have a herd of about 500 cows, a daily milk production of about 800 Liters. We have also been engaged in Hydroponics Fodder production experimental work over last 5 years.

Prakash Singh

One of the most effective ways of achieving your goals would be to set up a local research farm at say an agricultural school/college or university. The Farm should be fitted out with a milk recording, measuring and data collection via a PC. Because your climate, crops soil an animal genetics differ from Europe or the American Continent, you will need to test & Analyze the various suggestions of adjusting the feed/nutrition compounds, water temperature, pest controls etc. The research farm will be able to identify the most profitable suggestions from other countries and recommend the local farmers adopt those first. In order to put such research projects together, companies like ourselves and governments such as Canada will provide subsidies to make it happen.

M.P.Yadav

- 1.Mastitis control & management, and prophylactic vaccination for clean milk production
- 2.Feeding of Area Specific Mineral Mixture for enhancing milk production

K K Singhal

Thanks for communication and wish a success for the workshop which you are arranging during Sept, 2011. Being abroad, I will not be able to attend the workshop in person, however, following tips may be considered to tackle the three major problems, which you have rightly identified.

1. Many milk producers don't even bother about their own hygiene and expectation from them about the clean milk production is too much. Therefore, incentive (in cash or kind) may motivate them for clean milk. Without motivation, things will continue as such.
2. Methods for the conservation of fodder and methods for the utilization of industrial wastes may be propagated among farmers. Milk producers know the importance of nutrition but lack of resources restrict them to feed the animals properly. Proper feeding of young stock should also be popularized. These things can be discussed with other experts in length.

C K Sant

Though there are many methods to improve productivity but proper dissemination of the same require a one to one dialogue with the farmers by an expert having empathy with them.

To begin with if the farmer increases the water feed to animal just by one time in a day; a guaranteed increase of minimum 5 % of milk yield is possible.

HK Gupta

In today,s material world,people understand language of money.Topic can be, how to improve profitability of milk producer.

Reply : Point well taken and noted. The flip side is that whatever non conventional and bad practices are prevailing in the society are happening because of this language of money.Dr Rajvir Singh ex director NDRI (who is now part of agri costing committee in the ministry) is also a part of the group and I have requested him to develop some appropriate models of costings so as to help farmer find simpler ways to find out the cost of his produce. As on date it is mostly an imputed cost and farmer is not clear on what he should charge for his produce.

We shall try to develop a simpler version in the form of some actionable tip for him to increase his profitability.

Knowledgebase series by Suruchi Consultants

Comment on our reply : No, the issue looks to be side tracked.

In a capitalistic economy which we are now, increased production and better production practices alone will help bring down cost of production. Increased competition because of entry of private sector, will force unscrupulous farmers offer market related prices.

There is a visible change in dairy industry, which all of us should accept.

In a corrupt society and banishing of a unifying force in form of DR KURIEN, and cooperative sector getting into hands of self seeking local thugs and discredited politicians will fall apart, and all these dudh mahals will be available for grab.

Our Reply : I fully agree with your deliberation and particularly the one advocating high productivity and thus profitability and thus sustainability. Interestingly barring very few parts of the country dairy is still considered as a part time activity and is patronized by either elders or woman of the house. There are presumably 3 ways of improving ROI I.e by increasing the revenue or decreasing the costs or both. Right now we are dealing with one issue to begin with I.e increase in production without any pro-rata impact on costs. We could run a separate campaign to force dairy industry to pay higher prices to the farmers. The key question is what is the right price for milk so as to ensure long term sustainability. The Fat/SNF /protein basis is not working well . We are trying to understand the economics of differential pricing as per animals e.g if standard milk of hybrid cow/buffalo to be procured at around 40 then the same from Desi cow should be around Rs 55. This differential should prevail but only after creation of such system. I know the task is uphill to get a consensus, but do we have some other options? Your comments would be appreciated.

Comment on our reply : Advocate contract dairy farming so that economy of scale can be achieved and modern manufacturing practices can be implemented.

Dairy labor is no longer free, only higher productivity can save this industry, or else stable new news landers will capture our products market.

PL. DECIDE PLAN OF ACTION TAKING INTO CONSIDERATION BROADER ASPECTS.

My belief is, we should leave price to market dynamics.

We should contribute our experience on increasing production.

Increasing prices regularly, without any rhyme and reason will explode this industry.

Educate as many farmers as possible, on newer ideas of increasing production.

let water(prices)find its own level. Let us not work on beaten track if we want to give something in our wee ours.

Arun Chaube

The concept is truly innovative and noble.

We at India@75 are primarily working on 7 main themes. Agriculture is one of them; CII has been dedicating resources in this sector; hence, we have chosen a theme that will complement the overall efforts of CII besides meeting the vision agenda set for 2022.

Our Vision element under Agri theme is “Ensuring a Balanced Meal for Every Indian by 2022”. This vision element comprises 4 Strategic objective of which one is enhanced productivity of Livestock and Poultry. How this sector can be made attractive for Private participation as also increase market efficiency by ensuring assured market for farmer, his share in profits and evolving a farmer controlled delivery system.

From the concept note it is evident that you are congregating a pool of experts who can immensely contribute to the cause, I look forward to talking / meeting you.

Anil Patel

1. Is there any waste land or common land available near by these village? If yes
2. Than form a separate co-operative or group institution to grow best fodder varieties released by IFGRI, Jhansi. Try to involve young group to cultivate these fodder and distribute on minimum cost basis to milk producers.
3. If possible, link up this program with MNGREGA for labour point of view. Talk to leaders of Gram panchyat, TDO or DDO.
4. If there is no common lands than go for hydroponic based fodder system.

Second, is there any buffalo going towards culling side since last 2 -3 years? Is slaughtering increased or decreased in last 5 years or so? Pls. specify the reasons for it. Find out impact of slaughtering on milk production if possible.

You may approach Director, IFGRI as their dairy extension wing provide free of cost fodder seeds to progressive milk producers. Even they would sent directly in villages of Ghazipur where you have visited. Postal and other incidental cost may need to incur. Kindly approach them directly. There are very cordial and helpful people are available.

R. BACHE GOWDA

1. Intensive/Compulsory Train Farmers in terms of Clean Milk Production (HACCP

Knowledgebase series by Suruchi Consultants

issues in particular; Food Safety Quality issues in addition to Quantity & other related issues feed, Mineral Mixtures, GREEN FODDER etc.

2. Animal Health Camps coordinated with State A.H Depts, Veterinary Drugs/Feeds Suppliers, Mineral Mixture manufacturer suppliers with Deworming, Infertility Check up, P.T, A.I etc immaterial of Private or Co-operative.

3. Provide C.M.P. Calendars in local languages to all Milk Vendors/DCS/Suppliers.

4. Arrange Bank Loans for Animal Purchases, Cattle green Fodder development & Cattle shed.

On the above issues other supporting details we will be ready to provide in particular & other known issues like milking practices etc in general we can share.