

Improving Raw Milk Quality using Whatsapp – A Rise of Digital India in Indian Dairy Sector

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Abstract

Milk which is considered like nectar in our scriptures is now being adulterated with chemicals, has residues of antibiotics, hormones and pesticides as well as a wide range of microorganisms, including pathogens, in numbers often exceeding billions. This not only harms the final consumers of such milk and milk products but it also poses technological difficulties in processing such contaminated and adulterated milk. So, there is a need to improve the raw milk quality which can only be done by a harmonious collaboration between the milk producers at the rural level and experts of the dairy industry. We have started conducting a pilot study using WhatsApp as a social media tool in this age of technology where IT solutions are being sought after in every field. The response to our initiative has been positive. In this paper, we have presented how a social media tool is implemented to create awareness among the milk producers about “Clean Milk Production” practices and to encourage them to adopt these.

Keywords- Clean milk production, Dairy Sector, Raw milk quality, WhatsApp

I. INTRODUCTION

India ranks first in the world milk production as well as possesses the highest number of milch animals. Inspire of being first in both of these, we shouldn't feel contended about our achievements in the field of dairy sector. This is because of the fact that our milk productivity per animal remains low compared to the western nations. There are many reasons responsible for such low milk productivity of our animals out of which lack of proper care and breeding of our indigenous breeds turns out to be the major reason. Not only our milk productivity is low, but the quality of raw milk is even lower. If we look at the total bacterial count of the milk which has been pasteurized, then our counts are around 30,000 cfu/ml as opposed to just 5,000 cfu/ml in case of raw milk of western nations. Apart from poor microbiological quality, our raw milk is often adulterated with water, urea, salts, ammonium salts, detergents, neutralizers, starch, malt dextrin, glucose, sucrose, foreign fats and oils, colouring matter, etc. Not only these adulterants are hazardous to health, but they reduce the nutritive value of milk and even make it unsafe for consumption. Moreover, such adulterated milk should not enter the food chain to ensure the safety of consumers. Even certain dairy farm practices affect the quality of raw milk like the presence of pesticide residues due to contaminated feed and antibiotic residues due to mixing of milk from diseased animals into the pooled milk by the milk producers without waiting till the withdrawal period.

It is said that a good quality product cannot be prepared from poor quality raw materials. The same holds true for milk and its products. Hence, with such poor quality raw milk available to dairy plants, we cannot expect high quality, export grade products to be available in the market for our population of 1.25 crore. All the government policies and schemes related to dairy sector will not be fruitful until the quality of raw milk is at par with that of the Western nations. Hence, to improve the quality of raw milk is of utmost importance for the dairy sector.

The reasons for poor quality raw milk are many - including social, economic and technological background of our nation. The milk production, processing as well as consumption pattern of milk and milk products in our country is very different than in the western nations. We have around 70 million milk producers situated in the villages of whom majority are landless, small or marginal farmers possessing one to three milch animals per household. On the contrary, western dairy farms have large number of milch animals per farm. Their dairy farms have hundreds to thousands of animals which are milked by machines and offer scope for mechanization and automation. This greatly reduces the contact of milk with external environment including humans, animals, air, etc. Not only this, the Indian dairy industry is predominated by the unorganized sector which handles around 70% of the surplus milk production and the organized sector consisting of cooperatives, public, private and multinational dairies handle only 30% of the surplus milk production. Of the total milk produced approximately 48 % is retained by household for domestic consumption/retained in production area itself. Remaining 52 % is sold as marketable surplus (J. V. Parekh, 2012) [6]. This scenario is also opposite to what is prevalent in the western nations. Even the milk products prepared in India are very diverse and different than in western nations. The consumption of liquid milk is more than half of the total milk production whereas the rest is in the form of ghee, curd, paneer, khoa and chhana based sweets with less proportion of Western dairy products like butter, cheese, ice cream, milk powder, etc.

Upon comparing our raw milk quality with western nations along with the causes, we find that lack of awareness among our masses especially milk producers as well as improper infrastructure facilities are the main reason leading to poor milk quality.

And as we have around 70 million milk producing households of which majority are in the rural areas, reaching to them is really a challenge [2]. Moreover, to ensure that the information is properly communicated is even more difficult. In such situation, social media helps in fulfilling our objective. There's a plethora of social media tools available such as Facebook, Twitter, Google+, YouTube, WhatsApp, Hike, LinkedIn, Instagram, Pinterest and many more. Social media is no longer a fad; it has become a necessary vehicle to communicate and with 50% of the world's population under the age of 30, it certainly has become the most prominent means for which the largest demographic wants to receive information (Qualman, 2012) [7]. Social media can be used by milk producers, veterinary doctors, dairy professionals, industrial personnel and academicians to create a common platform where they can procure and disseminate information. Moreover, the milk producers as well as consumers can be made aware of the emerging issues quickly and effectively. In this present world, face-to-face communication is not feasible to share information among people. On the contrary, social media can help people effectively communicate their problems and success stories as well as get expert knowledge at almost no cost.

Out of various social media tools available, the most popular one is WhatsApp. WhatsApp Messenger is a proprietary, cross-platform instant messaging application for smartphones. In addition to text messaging, users can send each other images, video, and audio media messages. It provides zero cost communication facility. Over 27 billion messages are sent by over 300 million users everyday on WhatsApp! That's more than any other social networking site by order of several magnitudes. At a more logical level, WhatsApp seems to have democratized the social networking phenomenon in India [5]. You'd never find a dudhwala, chaiwala, sabziwallah on Facebook or Twitter now, would you? Up until WhatsApp, social networking was for an exclusive lot, who were internet savvy, owned a laptop and had interesting things to share. In contrast, WhatsApp needs only a smartphone; your socio-economic standing is irrelevant. An AGRESCO study conducted by Kamani and Makwana in 2015-16 found that students belonging to the lowest-income households also owned smartphones [1]. The recent voice messaging feature in WhatsApp even eliminates the need for written English as the mode of communication, making it all the more usable for an expanded set of the Indian population.

WhatsApp offers many advantages such as [3]:

- It is completely free for use.
- It can be used to send messages instantly all over the world.
- It is user-friendly and very easy to use.
- It does not display advertisements on the screen.
- It automatically imports the contacts from the mobile phone and displays the contacts which are using WhatsApp.
- It has an option of viewing whether the receiver has received/read the message.
- The voice messaging feature allows people to communicate without having the knowledge of English. This can help rural people avail the benefits of expert knowledge through various groups.

A. Innovative uses of whatsapp in improving raw milk quality

The Panchayat in each village can collect the phone numbers of the milk producers and make a WhatsApp group where a veterinary doctor (available nearby), dairy technocrat, expert/scientist are added with the Panchayat members being the group administrators. In case the number of members exceed the upper limit of 256 members per group, another group can be formed with the above mentioned people included in all the groups in that village [4]. By creating such groups on WhatsApp the following key areas can be addressed –

1) Veterinary care

Milk producers in remote areas will be able avail veterinary services for their sick animals by uploading pictures or videos describing their symptoms. The veterinary doctor in the group will suggest the medicines or remedies which can be given to the animals. If he/she cannot diagnose the ailment, then he/she can either visit the milk producers or the milk producers can take their animals to them depending on the situation. This helps the milch animals to get prompt medical attention. As the ailment is detected and treated as early as possible, that too at no or low cost, the chances of milk quality getting reduced due to infection is minimized. Even care will be taken so that sufficient withdrawal period after giving antibiotics to the animals is observed so that antibiotic residues do not enter the milk chain. Apart from this, redundant loss of precious animal resources of poor milk producers will be prevented because of prompt medical attention provided to the milch animals.

2) Scientific herd management

All the researches end up being futile if they cannot be implemented or utilized by the target audience. Most of the milk producers in our country are not in a position to read and comprehend the research outcomes carried out by various agricultural universities. Hence, the experts will create and upload videos and photos on WhatsApp groups describing scientific herd management practices based on the latest research outcomes. Not only this, the milk producers can upload the pictures and videos of their cattle sheds and barns on the WhatsApp group. The expert present in the group can suggest economically feasible solutions to revamp their cattle sheds. Moreover, the milk producers can get optimized feed plans to suit the varying requirements of their animals as different animals have different requirements. Even the same animal will have different requirements during various phases of life like lactation period, gestation period, etc. This will not only provide a balanced, nutritious diet to the animal but will also be

economically feasible for the milk producers. Apart from these, it will increase the milk productivity of the animals as well as the quality of their milk.

3) Clean Milk Production

The major move which can really help in drastically improving raw milk quality is the implementation of clean milk production. Clean milk production refers to “Milk which is drawn from the udder of healthy animals, which is collected in clean, dry milking utensils and free from extraneous matter like dirt, dust, flies, hay, manure, etc. Clean milk has a normal composition, possesses a natural milk flavour with a low bacterial count and is safe for human consumption.” However, due to the lack of knowledge, awareness and education among the milk producers, its implementation has not been done widely. Clean milk production has certain guidelines which help in improving the raw milk quality by preventing contamination of milk through various sources like animal itself, human handlers, air, utensils, milking area, detergents and disinfectants, etc.

All these things can be explained by having discussions on WhatsApp group, uploading of videos and pictures regarding clean milk production and if the milk producers have any queries, they can be resolved on the same platform. The milk producers can be better convinced to adopt clean milk production if they are made aware of the consequences of their existing, ignorant practices. For example, if sufficient withdrawal period is not observed after giving antibiotics to the diseased animals, then the residues of antibiotics are bound to come in the milk. These antibiotic residues are detrimental to human health by creating antibiotic resistance as well as causing allergies in hypersensitive consumers. Such milk also poses processing problems especially during the manufacture of products like cheese, dahi, yoghurt and other fermented products by causing failure of starter culture.

We have recently implemented this on a pilot scale and formed three groups with the help of three of our batch-mates belonging to different villages. They have added their relatives and friends who are milk producers and they are in discussion with the Panchayat members and local veterinary doctor as well. The students will act as the dairy guides for the time being and issues that cannot be resolved by them will be taken to the professors and experts in our field by the students. We have been receiving a positive response from all the parties involved.

II. CONCLUSION

Computer Application will optimize solution in dairy industry. Using solution, user has optimized their production in the reducing production cost and unit costs. Computer application/ automation will improve the physical working environment considering the number of monotonous, repetitive tasks to be eliminated or minimize, increasing efficiency in production. Computer application available in the agriculture today, makes it possible to manage a dairy industry on a more detailed level than before. The dairy manager can make more rational decision through acquiring amount of information, the dairy manager has to operate several computers each day and manually transfer data from one unit to another. Most computerized systems are capable of generating accurate and detailed documentation of dairy processing under computer control. What is important is that the computer generated records contain all of the information required by the system. The use of computerized systems within the dairy industry continues to increase. The use of computerized system technology is expected to continue to grow in the dairy industry as the cost of components decrease, as components are continually improved to withstand the rigors of dairy processing environment, and as dairy companies continue to update production facilities, equipment and manufacturing processes in an attempt to produce high quality, high value products, at the same time reducing production time and cost. The use of computerized control systems in the production of dairy products lends itself to fulfilling those goals.

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