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A Review on Dairy Farming in India and Its Popularity

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ABSTRACT: ***Dairy farming in India has the potential to offer farmers with additional revenue while also accomplishing important dairy farming goals, such as diversifying output and promoting the ecological cycle within the agricultural system. India is now the world's biggest milk producer, thanks to the industry's incredible growth rate. Furthermore, owing to improved market knowledge, there has been a rise in concern about the safety of milk and milk products, including pollution, toxins, and the lingering effects of different chemical compounds. Dairy farming is gaining popularity as an alternate choice throughout the world. Milk and milk derivatives have experienced a significant increase in demand in recent years. The article discusses milk farming in India, including how it has existed from the beginning of time, India resolution, dairy farming investment, and dairy farming breed collection. Due to several fundamental geographical, cultural, and economic advantages, such as traditional agriculture and indigenous technical knowledge and methods used by Indian farmers, etc., the fast growth of dairy farming in India is feasible. However, the predominance of small and marginal dairy farmers continues to pose a number of challenges, as well as a number of other flaws, to the quicker expansion of dairy farming.***

KEYWORDS: ***Breed, Dairy farming, Farming, Farmers, Milk.***

1. INTRODUCTION

Dairy farming has progressed significantly from a traditional family-run business to a well-organized industry with professionals specializing in many aspects of the business. We also witnessed a huge increase in dairy farming equipment, allowing new dairy farms to handle thousands of dairy cows and buffaloes. Individuals have gained a lot of agricultural jobs as a result of the industry's phenomenal development. Milk processing has had an effect on livestock programs, fodder management, animal nutrition, reproductive behavior, and animal welfare in recent years, when done in accordance with international and national agricultural regulations. There are also significant differences across nations and goods; for example, drinking milk has a larger market share than refined beef and meat. The dairy farming business has the potential to provide milk to the food industry. Several authors have looked at the potential demand for dairy farming possibilities [1], [2].

Several stages are taken in the dairy farming business throughout the process of milk entering the dairy industry. The development of methods to enhance and optimize milk processing is critical in the dairy business. Because milk products degrade with time, manufacturers must improve their manufacturing schedules and prepare them meticulously [3], [4]. Dairy farming is a kind of farming that involves the long-term processing of milk for the eventual sale of a dairy product (either on a farm or in a dairy factory, either of which can be referred to as a dairy). Milk and milk products have been a component of culture for most of mankind's development. Milk is utilized in a variety of dishes for all sorts of occasions by ethnic cuisines all over the globe. Chai and coffee are an important component of our country's daily and evening rituals. How did you end up drinking so much liquids that came from another animal? What happened to turn this into a multibillion-dollar industry?

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1.1. 1700 BCE-20th Century

The finding of cow and goat bones at India's archaeological sites shows that milk has been used at least since the Harappan Civilization (3300-1300 BCE). The first recorded mention to milk and milk objects in the subcontinent is found in the Rigveda, which may have been composed about 1700 BCE. Curd, butter, buttermilk, and ghee were among the items listed, all of which are still prevalent in the Indian cuisine. Travelers such as the Chinese monk Huan Tsang describe milk and milk products playing a major part in royal feasts between 1000 and 1500 CE. However, it became a meal that was consumed by everyone throughout time, regardless of whose socioeconomic groupings controlled the country (Consider many of the dishes connected with various festivals in different communities, as well as the use of dairy as an ingredient in them). By the time the British began their colonial control in the 1600s, milk production had become less irregular and had expanded throughout the globe. At this time, unorganized tiny cottage businesses were sprouting up in villages and towns throughout the country. The tribes of north-east India drank tea for medical purposes, and it was definitely not considered a drink in today's world.

1.2. 1970

This year saw the introduction of government initiatives aimed at transforming India's milk production and our dependence on it. The creation of a milk processing system impacting dairy farmers all across the globe was known as the 'White Revolution' and 'Operation Flood.' A government views the dairy industry as a means to increase employment opportunities while also increasing people's access to nutrition. The study recognized a link between dairy producers run by rural families and urban markets with lower supply and higher demand.

1.3. 2000

Plant-based milks began to develop in response to the growing vegan trend and the requirements of people who did not consume dairy. In recent years, a new problem has been added to the mix: the dairy industry's long-term viability. The need to provide milk to every member of society has placed a strain on sections of the supply chain that have been overlooked in the quest for development. Cows that produce milk, on the other hand, have suffered as a result of inexperience and a lack of understanding. On the other side, the poor quality of life provided to these animals leads to illness (in the form of cross-species transmission to non-human animals and humans) and inadequate (and perhaps hazardous) milk production. Nonetheless, reducing the quantity of milk we consume or eliminating it entirely will only help to alleviate the issue a little.

1.4. 2017

In the past, Good Milk has positioned itself as a business dedicated to assisting individuals in making the shift to a plant-based diet (partial or complete). We care about animals and the environment we share with them, and we work hard to ensure that everyone can feed themselves and have a better future. Dairy farmers gather milk from lactation in order to produce milk, cream, cheese, and other dairy products for human use. We'll talk about what happens to the calves that were supposed to drink their moms' milk later.

2. LITERATURE REVIEW

A Moller describe the dairy industry's process, monitoring, standards, and quality. The author's study of milk processing sample from farm level collection that explains the planting of dairy farming process step by step. They also go through the products that dairy farms produce. They also develop quality control tests for determining milk quality and analyze testing methods.

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The dairy industry's response to Industry 4.0 is largely due to meticulous maintenance and enhancement of manufacturing and logistics chains, which includes robotic milking equipment and automation of processing and packaging lines, as well as rapid chemical and microbial analyzing sensors and improved real-time data management. This study primarily focuses on processing trains, with an eye toward better optimization [2].

B. A. Ventura et.al introduce the paper Views on argumentative practices in dairy farming. The delegates discussed early cow-calf separation as a consequence of a web-based website encouraging stakeholders to voice their opinions on controversial topics in milk production. "Will milk calves be taken from the cow during the first hours of birth?" she said. Participants may say "no," "yes," or "neutral," and either provide reasons for their opinions or select from a list of explanations provided by others. The remaining 69 people with some involvement in the company (33%), students or professors (13%), animal activists (11%), farmers (9%), and other specialists in the dairy industry (9%), were recruited for four different member groups. In their reasons, opponents and supporters from all five parties highlighted similar concerns [5].

3. DAIRY FARMING IN INDIA

3.1. Dairy farming in India has been prevalent from the times immemorial:

It's generally thought to be a family company that's been handed down through the centuries. Gopal-Shri Krishna was a well-known milk manufacturer. Agriculture and milk farming go hand in hand in India. The farmers augment their income by raising buffalo and cows in addition to their full-time agricultural business. With the passage of time, this so-called family company ushers in a new era of dairy farming, one that is more organized, technologically sophisticated, and lucrative.

The unpleasant truth, however, is that instead of being an asset to producers/dairy farmers, it has started to develop into a loss-making business for them in recent years. The dairy farming sector in the nation is harmed by high production and cheap costs of milk animals, as well as their upkeep, immunization, lack of feed management, and increased human hours spent on animal care. Most dairy farmers began to distance themselves from the business, and those who did so had difficulties in living and raising cows, relying on home milk supplies and sending excess milk to Milk Collection Centers. The "White Revolution" in India in the 1970s altered the landscape of dairy farming and milk production [6], [7].

3.2. In India Dairy Farming White Revolution:

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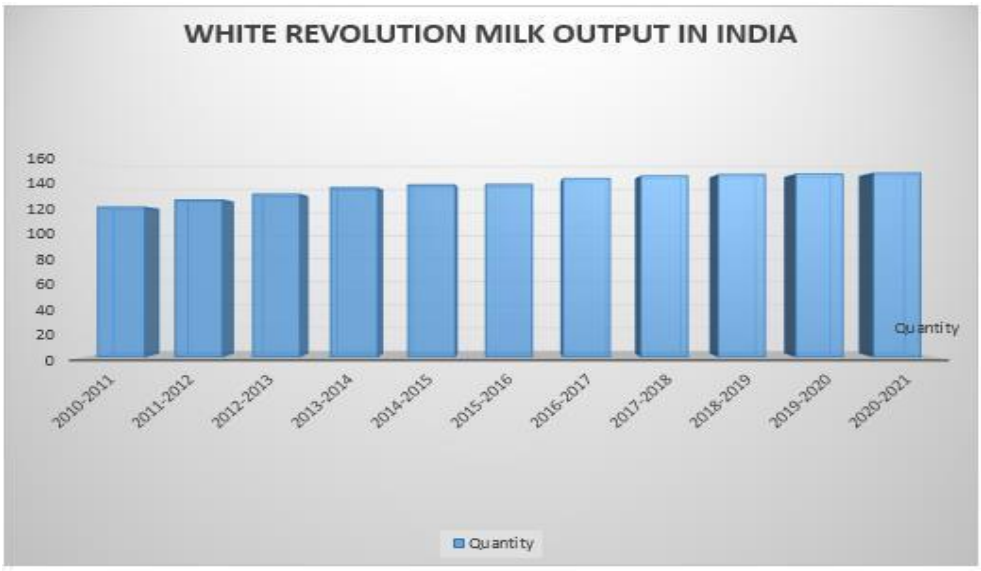

Figure 1: Illustrates the graphical representation of the white revolution milk output in India and the production of milk according to the year wise.

The White Revolution, also known as Operation Flood, was the idea of Dr. Verghese Kurien, a social entrepreneur who came up with the "billion-liter notion" in 1970. The main aim of the reform was to make the nation self-sufficient in milk production and to improve the efficiency of milk and various milk products by correctly and effectively managing cattle and other milk-producing animals. India produces the most milk in the world, with approximately 12 million farmers spread across 22 nations in the area, and around 250 dairy facilities processing about 20 million liters of milk each day. Figure 1 depicts how India's white revolution milk production has increased dramatically year after year. India's total milk output in 2014-15 was projected to reach 140 million tons, up three million tons from the previous year. Despite this, milk consumption has risen by six million tons per year in the past six years as a result of a greater focus on new animal production and agricultural expenditures. In India, the integrated industry accounts for 20% of total dairy output. According to estimates, the dairy industry consumes just 5% of India's total milk output, with the majority being small-scale producers (SMP).

The White Movement in India was successful in making India a worldwide leader in milk production. As a result, milk agriculture has grown to become India's most self-sustaining sector and the country's biggest employer of rural people. Dairy producers have decreased their spending on nutritional feed for animals as a result of decreasing milk earnings. According to an animal feeds stock producer, if the situation continues, livestock prices will begin to fall. The white resolution in India is growing day by day, and as a result, the output of dairy farming is quickly increasing, which will assist to offer business in the dairy farming sector. The output of milk grew as the scope of white resolution was expanded, and the rate of mile has not risen much in recent years owing to increasing dairy farming.

The current article discusses dairy farming in India, as well as how dairy farming benefits human existence and daily activities. Furthermore, this article addresses the issues surrounding the objectives of dairy farming. It has also been observed that dairy production has been in India from the beginning of time, which explains the white resolution. Finally, the article discusses how someone may establish a company in dairy farming, how to calculate the investment for milk farming, the acreage needs for dairy farming, the types of animals needed

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for dairy farming, breed selection, and the climatic conditions required for dairy farming [8]–[10].

4. DISCUSSION

This article is primarily concerned with dairy farming, and the writers provide a variety of viewpoints on the subject. We can observe that many writers addressed dairy. Some authors' research aids in understanding the methodology of dairy farming, while others aid in learning about the history of dairy farming. All of these studies aid in understanding the concept of dairy farming, and the author of this paper discussed how someone can start a business in dairy farming and how they can invest their money in dairy farming. This also included animal breed selection, how much area they need for this operation, and how climatic conditions influence dairy production. They're all broken down into steps below:

4.1. How to start Dairy Farming Business

Because India is the world's largest milk processor and because many farmers, enthusiasts, new-age entrepreneurs, investors, and IT engineers are unaware of the industries definite profit limits, many farmers, enthusiasts, new-age entrepreneurs, investors, and IT engineers are eager to open their own milk farm or join the milk market.

4.1.1. Investment for the Dairy Farming

In the beginning, as with other enterprise, the dairy farming industry often needs the certain investment to give it a lift. In reality, dairy farming needs substantial investment for a respectable economic scaling, including the purchasing of cattle, leasing, land purchase and development of shade. The exact amount of investment needed cannot be identified, since there are a variety of variables that lead to the estimation of the investment needed, such as:

1. If the dairy farming business's property/land is self-owned or rented.
2. Availability of skilled manpower in the region.
3. Availability/scarcity of fodder, as well as whether it is cultivated on the farm or imported.
4. The expense of water, power, and the construction of a shed, among other things.
5. Number of dairy animals purchased/breed of dairy animals purchased
6. Construction of a Dairy Farming Shed
7. Machines and equipment needed for milking and animal care.

Starting with one dairy farming start with animals, 5 animals and 20 dairy animals is the prerogative of the dairy farmer. If the recurring revenue is from the lactating buffalo/cow, it is very fair to assume that a farmer has a better chance of having a viable company with a huge herd of milk animal until the manufacture line is in sequence.

4.1.2. Land Required for Dairy Farming and kind of area Required:

For dairy farms with a high herd size capacity, land is needed for the shed, as well as open space for the animals to wander freely, a milking parlour, feed shop, straw store, tools room, manger area, maternity pens, office area, manure pits, and pathways, among other things. Shed ground, open space, fodder agriculture, and restricted storage spaces may be required for smaller farms. The cattle occupy around 65-70 percent of the entire land area, while the rest may be divided into amenities as described above. It is suggested that each cow be provided with 200 square feet of loose housing. A herd of 20 animals would need at least 4000 square

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feet of area. The more room available to each animal, the better. In addition, a start-up dairy farming operation would need 500 square feet per cow, including all required facilities and areas.

4.1.3. Animals Amounts for Dairy Farming:

For a young dairy farmer, it may appear to be a large investment at first, but if properly managed, the dairy farming industry can be a very profitable business over time. The investment will be more than the profit produced at the commencement of the business for the first five years or more. Dairy farming becomes competitive and efficient when farm methods are stable and production quality is achieved, based on current milk prices and the ability to sell milk locally. As previously stated, the number of animals purchased by dairy producers may be as little as one. The dairy farmer is in charge of determining how much money the dairy will spend. Whether or not to invest in the milk business is entirely up to the dairy farmer. If the farmer has fewer cows, however, it is considerably more difficult to cover operational costs, much alone make the business profitable. As a result, it's best to either start the business with a projected potential of at least 10-15 dairy animals or avoid a late break-even stage.

4.1.4. Selection of Breed for Dairy Farming:

A dairy farmer's choice of breed is determined by the kinds of demand he need for farming.

For example, different breeds of cow are recommended for different types of products such as cheese, milk, cream, and cheese. India has a large bovine population of several types. That is mostly due to its diverse biodiversity. In the area, there are as many as 40 distinct cattle varieties and 13 distinct buffalo breeds to categorize. The following are some of the most prevalent indigenous cow breeds raised by dairy producers.

4.1.5. Keeping Record for Dairy Farming:

Another essential aspect of dairy production that is often overlooked by prospective farmers is record management. Animal records are essential for milk farmers to keep, not only in terms of animal recruitment but also in terms of age, maturity, immunization, reproduction, lactation duration, and other factors. In reality, keeping track of overhead expenses such as fodder procurement, nutritional qualities of fodder fed to animals, farm maintenance, salary payment, water supply, and power is all part of the record-keeping process.

Because most dairy farms were open from previous family businesses and not to earn a livelihood, maintaining records was not a high concern in the past. There is no record of things like the number of hours put in for employment, farm repairs, and so on. Staff on almost all dairy farms were treated like family members, thus there was no income distribution. Almost all of the dairy farm employees were family members, thus there was no income distribution. It has become a profitable market possibility, with more and more farmers drawn to it, thanks to the introduction of sophisticated technologies and the increase of dairy farmers' working experience.

Dairy farmers are becoming more educated and tech-savvy. In the dairy business, this has become a selling point. Whether it's keeping records or utilizing milking tools/machines, milk producers are receptive to and ready to embrace contemporary technology. For dairy farming, a variety of record-keeping techniques such as notebooks, computers, bahi-khata, spreadsheets, and Excel may be used.

4.1.6. Research of Market for Milk in Local area for starting Dairy Farming:

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Before establishing a dairy farming business, producers should thoroughly research local milk demand and market segmentation. Starting a dairy farm with 50 cows in a tiny town with a low population where there are existing family-run dairy farms in existence for years is never a good financial idea. The farmer must figure out how much demand there is for his completed produce. Large milk producers that purchase milk from farmers may have ties to the village, district, or state. If a dairy farmer wants to start a big dairy farm, it's ideal if the farm is near a major milk factory that can provide them with milk. A dairy farmer must also grasp what his ultimate product is, as previously said. Some buffalo/cow breeds, for example, produce enough milk that is high in cream, while others produce more milk but less cream. Agriculture should be managed according to market demand.

4.1.7. Climatic situation for Dairy Farming:

Given that milk animals have altered and thrived in a variety of climatic settings throughout the globe, it is understandable that certain breeds adapt to certain climates better than others. In several cow/buffalo breeds, adverse climatic circumstances have been linked to an increase in illnesses as well as low milk production. This is especially true for pure foreign breeds or crossbreeds that are susceptible to heat stress under Indian settings.

5. CONCLUSION

Milk farming projects are now expected to meet a number of objectives. Development of milk, reduction of environmental damage, and improvement of animal health, biodiversity and environmental benefits India's dairy farmers seem to be a profitable option, given the deep indigenous expertise of animal farming, the rich biodiversity, the availability of inexpensive labor, the lower cost of dairy farming production, and the yet untapped huge domestic market conversion to production. However, because of its stringent minimum requirements, it is difficult to put in place on a large scale in a short period of time. It is necessary to make advantage of Indian farmers' skills and possibilities for resolving vulnerabilities and future problems.

The essence of products is environmentally sustainable and the desire to preserve the quality of natural resources, which would help farmers invest in farming and contribute to the well-being of the environment, as well as the development of certifying organizations and the marketing of dairy goods to raise consumer understanding of food. It will require strong government policy measures for dairy farming by all stakeholders to emerge from previous stumbling blocks, as well as heart and soul implementation of such policies. Dairy farming is a lucrative source of income in India, and it is worthwhile to continue. In every company, everyone looks at the expenditures and revenue generated by that firm before deciding whether or not it is a good source of income. They will examine the investment for dairy farming, breed selection for dairy farming, and climatic conditions for dairy farming in the dairy farming industry.

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