

DAIRY FARMING AND ITS PREVALENCE IN INDIA: BREAD EARNER FOR THE FARMERS

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Abstract

In India, dairy farming has the ability to provide farmers with extra income along with achieving significant dairy farming objectives, i.e. diversified production and fostering the ecological cycle within the agricultural system. India is currently the world's largest milk producer, backed by an astonishing growth rate in the milk industry. In addition to this, there has been an increased concern about the safety of milk and milk products, including pollution, toxins and the residual effects of various chemical products, due to increasing market understanding. As an alternative option, interest in dairy farming is growing globally at a fast rate. A sharp growth in demand for milk and milk products has been seen in recent years. The paper addressed milk farming in India and explains how India has been prevalent since time immemorial, India resolution, Dairy Farming Investment and Dairy Farming Breed Collection. The rapid expansion of dairy farming under Indian conditions is possible due to certain primary geographical, cultural and economic benefits, such as conventional agriculture and indigenous technological expertise and practices practiced by Indian farmers, etc. But the prevalence of small and marginal dairy farmers still raises many obstacles, along with several other shortcomings, to the faster proliferation of dairy farming.

Key words: Breed, Dairy farming, Farming, Farmers, Milk

Introduction

Today, dairy farming has evolved tremendously from being a conventional family-run enterprise to an organized dairy industry with professional specializations in any aspect of the operation. We also saw immense growth in machinery for dairy farming that lets new dairy farms handle thousands of dairy cows and buffaloes[1]. This tremendous growth in the industry has generated a lot of agricultural employment for individuals. In recent years, milk processing, carried out in compliance with international and national farming laws, has had an impact on livestock programs, forage control, animal feeding, reproductive behavior & animal welfare in particular[2]. There are also major variations between countries and products: drinking milk has a greater market share than refined meat and meat. The food industry is promising for providing the milk by the help of dairy farming. The possible demand for dairy farming opportunities has been explored by several writers.

In dairy farming industry there are several steps which are followed by during the process of milk into the dairy industry. In the dairy industry, the introduction of techniques to enhance and improve milk processes is important. The gradual degradation of milk products causes producers to refine their production schedules and prepare them critically. The flow chart depicted here in below, explains the functioning of milk processing industry which is shown in figure.1.

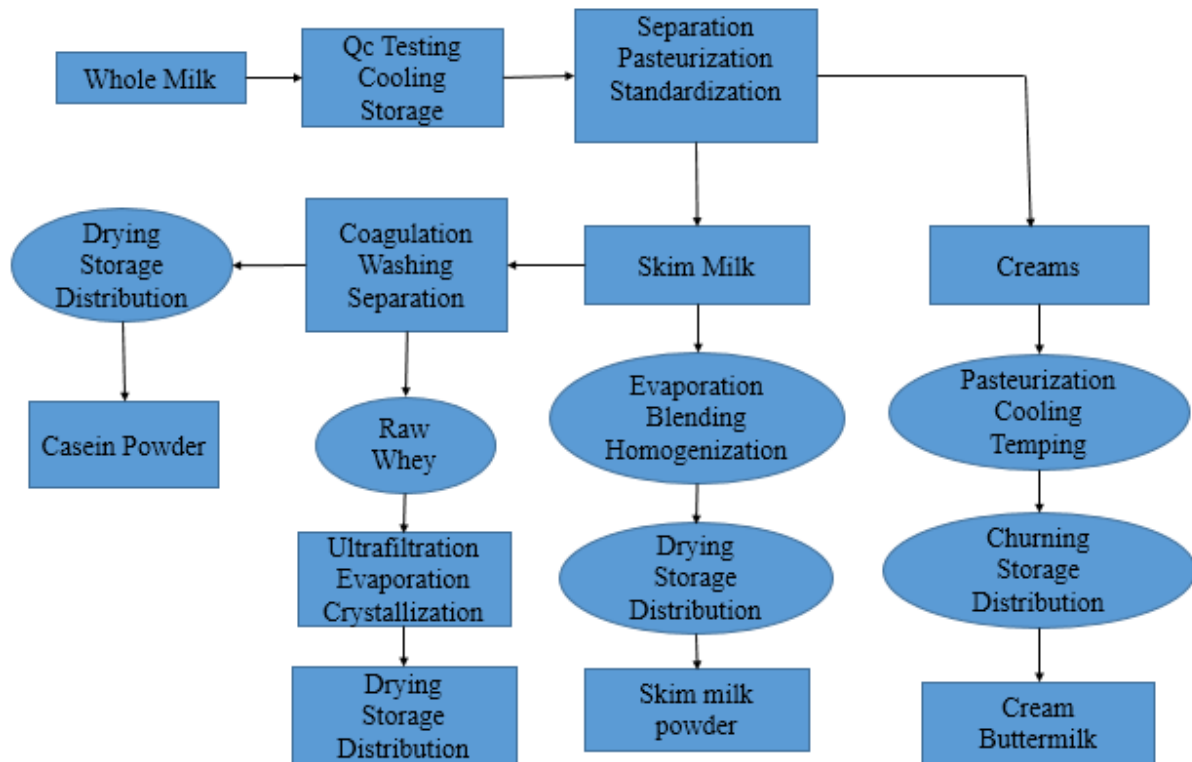


Figure 1: This flow diagram shows the processing of milk industry in which how it will be analyzing and monitoring the complete process of dairy farming industry.

Dairy farming is a class of farming for the long-term processing of milk produced for the ultimate selling of a dairy commodity (either on a farm or in a dairy factory, either of which can be referred to as a dairy)[3]. For much of the evolution of mankind, milk and the milk products have become part of culture. Milk is used by ethnic cuisines from all over the world to produce a variation of recipes for all kinds of occasions. Chai and coffee are the main part of the morning and evening routines of our country[4]. How did you come to drink such vast amounts of a fluid derived from another animal? How did this evolve into the multibillion-dollar industry that it is now?

(1700 BCE): Since ancient times, the discovery of cow and goat remains in excavation sites in India suggests that milk may have been in use at least since the Harappan Civilization (3300-1300 BCE). In Rigveda, which may have been written in about 1700 BCE, the 1st written reference of milk & milk artefacts subcontinent is find[5]. The entry included foods like curd, butter, buttermilk, and ghee, which are still protuberant in Indian diet.

(1000–1500 CE): Around this time, dairy manufacture was tranquil in its early stages as dispersal was constrained by socioeconomic position, regional supply and cultural partialities. Records reveal, for instance, that some tribal people found milk to be bad for their bodies; their milk intake was zero. However, as something of a luxury drink, it was still very influential among the kingdom's ruling classes[6]. In the mediaeval period (1000-1500 CE), travellers such as the Chinese monk Huan Tsang explain milk and milk products playing a prominent role in royal feasts. However, over time, it became the foods that was eaten by all, regardless of which social groups ruled the land (Consider many of the dishes connected with various festivals in different communities, as well as the use of dairy as an ingredient in them.).

(1600–20th Century): The production of milk had become fewer sporadic & spread transversely the nations by the time the British started their colonial rule. Unorganized small cottage industries were emerging across villages and towns at this period[7]. Tea was drunk by the tribes of north-east India for medicinal reasons, and

was certainly not considered the drink in today day. To break the Chinese tea trading monopoly, the East India Company moved the output of tea in India as much as it could. Up to now, chai is somewhat that cuts through cultures as single object to have in the evening and morning, or every time your heart wants it. This prepared milk consumption in several beverages, along with coffee, much more mutual in the area.

(1970): This year noticeable the launch of a governments programs that would transform the aspect of India's milk production and our reliance on it. The 'White Revolution' and 'Operation Flood' was the development of a milk processing scheme affecting dairy farmer all over the world. A government sees the dairy sector as the way of both enhancing the chances for jobs and improving access to nutrition for peoples. The program saw a bridge between urban markets that may have lower supply, larger demand and dairy farmers operated by rural families.

(2000s): In order to appeal to an increasing vegan trend and the needs of those who did not eat dairy, plant-based milks started to evolve. A new-fangled issue has been additional to the lists in recent years: the dairy industry's sustainability. The drive to supply every member of society with milk has put stress parts of the chains that has been neglected in the search for developed. On the other hand, because of inexperience and lack of awareness, the lives of cows that produce milk have deteriorated. The low standard of life offered to these animal, on the other hand, induces disease (in the forms of cross-species conduction to non-human animals and us) and poor (and likely harmful) the milk production. Nevertheless, by plummeting the amount of milk we eat, or leaving it altogether, can only improve the problem little bit.

(2017): In the history, Good milk positions itself as a company devoted in helping people transition to a plant depend diet (partial or complete). We love animal and the environment we share with them, & we do our hardest to make it possible for all to provide for themselves and to lead to a more prosperous future. For the intention of producing milk, cream, cheese and other dairy products for human use, dairy farmers collect milk from lactation. We'll get to what happens to the calves who were meant for their mothers' milk a little later.

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

It is widely regarded as a family business that has been passed down over the generations. Gopal-Shri Krishna was a prominent milk producer. In India, agriculture and milk farming go in hand. Along with their full-time farming operation, the farmers raise buffalo and cows to supplement their income. As time passed, this so-called family business ushered in a new era of dairy farming, one that was more structured, technologically advanced, and profitable as a result.

The difficult reality, though, in previous years, is that alternatively of being asset to producers/dairy farmers, it has begun to turn into the loss producing company for them. The dairy farming industry in the country is affected by high productivity and low costs of milk animal, their maintenance, their immunization, lack of the fodder control & higher amount of manpower hours placed in the care of the animals[8]. Most dairy farmers started to shift away from the company and those who managed to face difficulty in living and rearing cows only to fulfill home milk requirements and send extra milk items to Milk Collection Centers. In the 1970s, India's "White Revolution" changed the scenery of the dairy farming and the milk production.

In India Dairy Farming White Revolution:

The White Revolution, is also known by the Operation Flood, the brainchild of a social entrepreneur, Dr. Verghese Kurien, who created this "billion-liter concept" in the year 1970.

The key goal of the change was to makes the country independent in milk manufacture and to increase the efficiency of milk & different milk products by handling cattle and other milk-producing animals properly and efficiently[9].

India currently has the world's largest milk production and is home to around 12 million farmers in more than 22 countries around the region, with about 250 dairy plants processing about 20 million liters of milk a day.

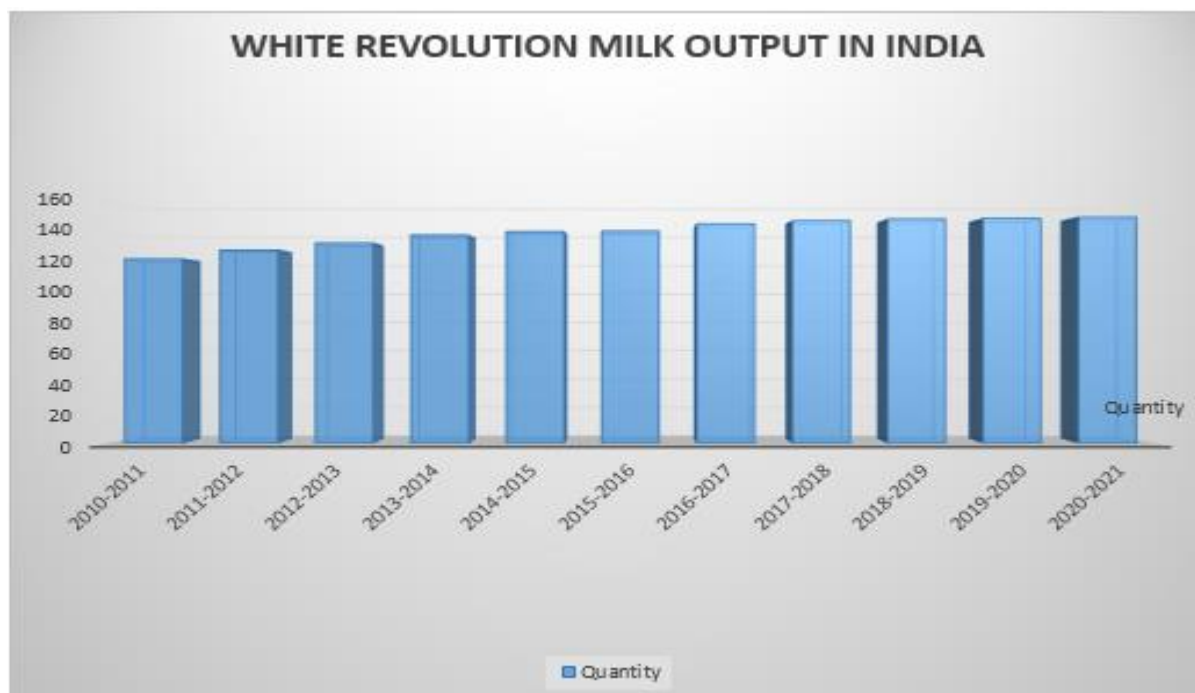


Figure 2: This graph shows the white revolution milk output in India and the production of milk according to the year wise.

In Figure 2 shown that how every year the white revolution milk output in India increasing in very high amount. The cumulative milk production of India in 2014-15 has been estimated at 140 million tons, a 3-million-ton increase over the last year. Yet milk demand has increased by six million tons a year in the last six years, due to increased emphasis on new livestock production and fresh farm investments. The integrated sector accounts for 20% of total dairy production in India. An estimate indicates that just 5% of India's total milk production is for the dairy sector, mostly small segment price (SMP).

The White Movement in India has succeeded in making India a global pioneer in the manufacture of milk. It led to milk agriculture becoming India's main self-sustaining industry and India's largest provider of rural workers. Due to lower milk profits, dairy farmers have reduced their expenditures on nutrient feed for livestock. If the condition persists, livestock prices will begin to decline, according to an animal feeds stock producer.

The white resolution increased in India day by day and due to it the production of dairy farming increasing rapidly, so it will also help to provide the business in field of dairy farming. Increasing the scope of white resolution the production of milk increased and due to increase the dairy farming the rate of mile are not much higher over the past few years. The milk is forecast to rise from the 130 million tons in 2014 to 200 million tons in 2022, according to the National Dairy Production Board, at a compound annual growth rate or CAGR 5 per cent.

The present paper discusses about the dairy farming in India, that how dairy farming is useful in human life and their day to day activities. Further, this paper deals with the objects regarding what are the purposes of dairy farming. It is also witnessed that dairy farming during immemorial times, explains about the white resolution in India. Finally, the paper is concluded while discussing how can someone start their business in dairy farming, how can we know the investment for farming of milk, the requirements of land for dairy farming, what type of animals required for dairy farming, selection of breeds, and what are the climate conditions required for the dairy farming.

Literature Review

Niamh Burke et.al in this paper researchers explain about the dairy industry: its process, Monitoring, standards and quality. The authors analysis the sampling of milk processing from the collection of the level of farm which explain the planting of dairy farming process step by step. In which they also explain about the product which are made by the dairy farms. They also identify the quality control tests to check the quality of milk and also analysis the testing strategies. The response of the dairy industry to Industry 4.0 is mainly due to diligent maintenance and enhancement of manufacturing and logistics chains, including robotic milking equipment and automation of processing and packaging lines enhanced by rapid chemical and microbial analyzing sensors, improved in real time data management. This paper basically focused on the processing trains with opinion to improved optimization.

B. A. Ventura et.al introduce the paper Views on argumentative practices in dairy farming: Early cow-calf separation, where the delegates were debated, results from a web-based website to encourage stakeholders to express their views on contentious issues in milk production. In reply, "Will milk calves be removed from the cow within the first hours following birth?" Participants have been able to state 'no' 'yes,' or 'neutral' and either give reasons for their opinion or choose reasons offered by other people. The remaining sixty-nine (69 per cent), with some participation in the business (33 per cent), students or faculty (13 per cent), animal activists (11 per cent), farmers (9 per cent) and other specialist dairy industries, were recruited for a total of four separate classes of member groups (163 people); (3 percent). Overall there was no unity among participants around the various groups; 44% agreed "yes," 48% "no" and 9% "neutral." Demographic responses vary, with an increased divide between women, animal activists and those without any participation in the dairy industry. A 50 group of 28 people was recruited at a dairy industry conference; 46 percent said "yes," 32 percent said "no," and 21 percent said "neutral." Opponents and supporters from all five parties cited common concerns in their justifications.[4].

Discussion

In this paper basically focused on the dairy farming in which different authors gives their different opinion towards the dairy farming. We see that different authors discussed about dairy some authors research helps to understand the methodology of dairy farming and some authors helps to known the past of the dairy farming they all research helps in different levels of dairy farming due to this we understand the concept of dairy farming and in this paper author discussed about the that how someone stablsh his business in dairy farming, how they can invest their money dairy farming and it is helpful business for them or not. In this also discussed about the breed selection of animals and how much land they want for this business and the climatic condition affect the dairy farming. They all are discussed below step by step:

How to start Dairy Farming Business:

In being founded that India is the world's largest milk processor and unaware of the definite profit limits in the industry, many farmers, enthusiasts, new-age entrepreneurs, investors and IT engineers are keen to open their own milk farm or join the milk market.

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[10]. 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.

Land Required for Dairy Farming and kind of area Required:

The land is required for the shed, as well as open space for the animals to roam freely, a milking parlour, feed shop, straw store, implements room, manger area, maternity pens, office area, manure pits and footpaths, among other items for dairy farms with expected large herd size capacity[11].

For smaller farm sizes, shed ground, open space, fodder agriculture and limited storage areas can be necessary.

Approximately 65-70 percentage of the total land is used to house the cattle, while the remainder can be split into amenities as designated above.

It is recommended that each cow be given 200 square feet of space in loose housing. A minimum of 4000 square feet of space would be needed for a herd of 20 animals. The more space each animal has, the better. A start-up dairy farming facility would also need 500 sq. feet per cow, taking into account all necessary utilities and spaces.

Animals Amounts for Dairy Farming:

It can seem to be a lot of investment at first for a young dairy farmer, but as the years go on, the dairy farming industry can be a very profitable business if properly run.

For the first five years or more, the investment will be more than the profit generated at the start of the venture.

When farm practices are stabilized and production quality is reached, dairy farming becomes competitive and efficient, according to prevailing milk prices and the capacity to sell milk locally.

As mentioned earlier, the numbers of animal procured by the dairy farmers can be as stumpy as one. The dairy farmer is in charge of deciding on the dairy's expenditure. It is entirely up to the dairy farmer to decide whether or not to invest in the milk business.

However, if the farmer has fewer cows, it is much more difficult to afford the operating expenses, let alone making it a viable company. It is therefore prudent to start the company with a projected potential of at least 10-15 dairy animals or to be careful with a late break-even stage.

Selection of Breed for Dairy Farming:

The types of breed to be purchased by a dairy farmers depends on the types of demand he needs for farming.

For example, several breed of cow are suggested for several product kinds such as cheese, milk, cream, cheese etc.

India is a huge bovine population of different kinds. Basically, that is because of its abundant biodiversity. It is possible to classify as several as 40 well definite breeds of the cattle & 13 breeds of buffalo in the region. Below are some common indigenous breed of cow reared by the dairy farmers.

Keeping Record for Dairy Farming:

The keeping of documents is another important part of the dairy farming, which is typically looked at by an aspiring farmers.

It is important for the milk farmer to maintain animal record, not only in term of animal recruitment, but also in term of age, maturity, vaccination, reproduction, lactation period, etc.

In fact, the preservation of the record does not end with the management of animal records, it also involves maintaining records of overhead costs such as the procurement fodder, the nutritional values of fodder given to livestock, farm upkeep, payment of wages, supply of water, electricity, etc.

In the old days, the keeping of records was not given much priority because most dairy farm were open from the past family enterprises and not to make a living. There is no record of such items as the amount of hours place in for jobs, farm repairs, etc. In nearly all dairy farms, the staff were just part of the household, so there was no allocation of income. In nearly all dairy farm, the staff were just family member, so there is no allocation of income.

The introduction of advanced innovations and the rise of dairy farmers' working experience, it has becoming a lucrative market prospect with more and more farmers attracted to it.

Dairy farmer are now more educated and technologically savvy. This has become a selling point in the dairy industry. Milk farmers are open and willing to accept modern technologies, whether it is maintaining records or using milking tools/machines, etc. Several record possession methods like notebook, Computer, bahi-khata, spreadsheets, Excel, can be utilize for the Dairy farming.

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

It is important for a farmers to deeply analyze local milk demand & segmentation of the market before starting the dairy farming company.

Starting a dairy farm with a herd of 50 cows in a small village with a low population where there are already family-run dairy farms that have been in operation for years is never a successful business plan.

The farmer must determine the demand for his finished product's consumption. The village, district, or state may have links to large milk producers who buy milk from farmers. If a dairy farmer wishes to open a large dairy farm, it is best if the farm is located near large milk plants that can supply milk to them.

Furthermore, as previously said, a dairy farmer must understand what his final product is. For example, some buffalo/cow breeds produce enough milk that is high in cream, while others have a higher milk production ability but less cream. The farming should be handled in accordance with market demand.

Climatic situation for Dairy Farming:

Given that milk animals have changed and adapted thriving to a climatic conditions prevailing throughout the world, it is correct that few breeds adapt better than others to the climatic condition of some areas. Adverse climatic conditions are also a documented source of an increase in diseases as well as poor milk production in many cow/buffalo breeds. This is particularly true in Indian conditions for pure foreign breeds or crossbreeds that are vulnerable to heat scare.

Conclusion

A variety of targets are now planned to be reached by milk farming schemes. Milk development, environmental harm reduction and enhancement of animal health, biodiversity and environmental goods. Given the rich indigenous knowledge of livestock farming, the rich biodiversity, the availability of cheap labor, the lower cost of dairy farming production and the still unexplored massive domestic market conversion to production, India's dairy farmers seem to be a lucrative choice. But with its rigorous minimum condition, it is difficult to implement it in a short period on a mass scale. The capabilities and prospects for Indian farmers to resolve vulnerabilities and future challenges need to be used.

Sponsored by successive capacity-building and knowledge-building, the development of certifying organizations and the marketing of dairy goods to raise consumer understanding of food, 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. It needs solid government policy measures for dairy farming by all stakeholders coming out of past dilemmas and heart and soul execution of those policies. In India the dairy farming is a profitable source and worth going on. In any business firstly everyone checks out the expenses and income through that business after that they decide that this business is good for income sources. In the dairy farming business, they will check the investment for Dairy Farming, the Breed Selection for Dairy Farming and Climatic Conditions for Dairy Farming.

References

1. R. Willis, "Farming," Asia Pac. Viewp., 2001, doi: 10.1111/1467-8373.00132.
2. E. Murphy et al., "Water footprinting of dairy farming in Ireland," J. Clean. Prod., 2017, doi: 10.1016/j.jclepro.2016.07.199.
3. A. P. Møller, "The effect of dairy farming on barn swallow *Hirundo rustica* abundance, distribution and reproduction," J. Appl. Ecol., 2001, doi: 10.1046/j.1365-2664.2001.00593.x.
4. B. A. Ventura, M. A. G. von Keyserlingk, C. A. Schuppli, and D. M. Weary, "Views on contentious practices in dairy farming: The case of early cow-calf separation," J. Dairy Sci., 2013, doi: 10.3168/jds.2012-6040.
5. A. Grogan, "Smart farming," Eng. Technol., 2012, doi: 10.1049/et.2012.0601.
6. FAO-Food and Agriculture Organization, Guide to good dairy farming practice. 2011.
7. A. Rosati and A. Aumaitre, "Organic dairy farming in Europe," 2004, doi: 10.1016/j.livprodsci.2004.07.005.
8. FAO, "Greenhouse Gas Emissions from the Dairy Sector A Life Cycle Assessment," FOOD Agric. Organ. UNITED NATIONS Anim. Prod. Heal. Div., 2010.
9. SAI Platform Dairy Working Group, "Principles and Practices for Sustainable Dairy Farming," System, 2009.
10. K. J. Foote, M. K. Joy, and R. G. Death, "New Zealand Dairy Farming: Milking Our Environment for All Its Worth," Environ. Manage., 2015, doi: 10.1007/s00267-015-0517-x.
11. C. S. Cardoso, M. J. Hötzel, D. M. Weary, J. A. Robbins, and M. A. G. von Keyserlingk, "Imagining the ideal dairy farm," J. Dairy Sci., 2016, doi: 10.3168/jds.2015-9925.