



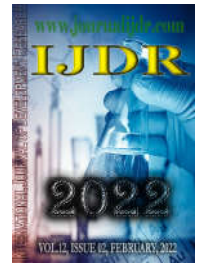
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## DAIRY PRODUCTION SYSTEM IN COMPOST BARN: SEARCH FOR PRACTICAL BOILING

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### ABSTRACT

This research aims to present the compost barn system, used by dairy farmers. Having as methodological guide the theoretical and practical comparison on this productive model. This system has its origin in the United States and has been gaining proportions, even timidly, all over the world, arriving with more expressiveness to Brazil recently. For this reason, we sought to measure the opinion and evaluation of the producers of the municipality of Quatro Pontes in western Paraná about this system, requesting positive and negative data. Finally, the results achieved were extremely important, because they confront theory and practice, of a system considered new and that is gaining significant proportions. Therefore, this research aims to enrich the debate about the production system in compost barn, as well as to provide attributes for future research on the subject.

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## INTRODUCTION

Dairy production is undergoing several transformations around the world, with a scenario marked by more demanding markets and the search for greater profitability of producers in the current situation. To this end, several related investments are focused: technology, genetics, food, strategies for the use of properties, practicality and comfort for animals and their workers, aiming at continuous results in milk quality, increased productivity and more profitable properties. In these perspectives of transformations and investments, it is seen with new models and production systems, which direct to the results presented previously. Being one of these systems the compost barn, which aims at production in the form of confinement, which aims primarily to improve the comfort and welfare of animals and, consequently, improve the productivity indexes of the herd and the profitability of the property. We identified a theoretical reference device on the compost barn system, but questioned about the opinion and practice of producers on this model. With this was aimed at seeking the opinion of dairy farmers who implemented this system, to provide us and present the positive and negative elements about this system. Regarding the methodology, bibliographic research was used in the theoretical deepening of the compost barn system, combined with quantitative and qualitative field research.

The field research was due to the search for the confrontation between theory and practice, searching for milk producers who work with this system in the municipality of Quatro Pontes in western Paraná, to express their opinion and present relevant data for this research. The choice for this municipality was made by virtue of its expression in the dairy market. Qualitative research is justified by the fact of aiming at the study with three producers, which are divided as follows: one pioneer in this system, another in intermediate time and another in the initial phase, so that there is an enrichment of information. The choice for this municipality was made by virtue of its expression in the dairy market. Qualitative research is justified by the fact of aiming at the study with three producers, which are divided as follows: one pioneer in this system, another in intermediate time and another in the initial phase, so that there is an enrichment of information. The quantitative research occurred due to the fact that there was access to the profile of all producers who work with compostbarn in the municipality, even if this information is not primary and. This research is divided into four parts: the first a presentation on the scenario and the historical contextualization of milk production and market, in sequence will be denoted on the compost barn system, later will be exposed to field research carried out with three producers from the municipality of Quatro Pontes-PR, and finally, the considerations related to this study. Therefore, the aim of this work is to enrich the debate in the field of applied social sciences, economic and agrarians', in view of

the research stemming from this area with regard to the dairy production system in the form of compost barn. The search for understanding the positive and negative elements about the system is constant, because there are always new questions that make this theme an inexhaustible field of investigation. Thus, the study will contribute to research on the subject, as well as open alternatives for future studies in the area.

**Dairy Production:** Milk production, in general, is moving towards increased productivity, with fewer animals and with the highest quality. For this, producers are looking for high investments in genetics, technology, sanity, food, management and better territorial use of properties. In 2019 the Ministry of Agriculture, Livestock and Supply - MAPA published a study called: "Agribusiness Projections. Brazil 2018/19 to 2028/29. Long-Term Projections." This document presents the projections of Brazilian agribusiness for the next decade, aiming to indicate development directions and provide subsidies to public policy formulators regarding the trends of the main products of Brazilian agribusiness.

Regarding milk, the document presents the following projection (MAPA; 2019, p. 52):

Milk production is expected to grow in the next 10 years at an annual rate between 2.0 and 2.8%. These rates correspond to a production of 34.4 billion liters in 2019 to values between 42.0 and 46.8 billion liters at the end of the projection period. The supply growth will be mainly based on improvements in farm management and animal productivity and less on the number of lactationsvascass. China's decision to import cheese from Brazil should have a major impact on this market.

The statistical study for the next ten years for milk producers is favorable, demonstrating an increase in production, based on property management and productivity of animals. For this reason, trends are properties with more investments in genetics, technology and excellence in administration, seeking less amount of animals and more quantity and quality of milk per animal. But for this, it is important that the consumption scenario also increases, because in addition to supply demand is needed. Similarly, the country needs to have the potential to export more milk than import, thereby achieving more international commercial space and later improving the price paid to the producer. In this sense, mapa presents the projection on production, consumption, import and export and for the next ten years (MAPA, 2019, p. 53):

**Figure 1. Milk production, consumption, import and export (million litres)**

	Produção		Consumo		Importação		Exportação	
	Projeção	Lsup.	Projeção	Lsup.	Projeção	Lsup.	Projeção	Lsup.
2018/19	34.438	35.903	35.427	37.187	68	426	1.187	2.387
2019/20	35.184	37.256	36.155	39.010	68	575	1.185	2.882
2020/21	35.930	38.468	36.915	40.633	69	690	1.182	3.260
2021/22	36.677	39.607	37.684	42.120	70	787	1.180	3.579
2022/23	37.423	40.699	38.456	43.513	70	872	1.177	3.860
2023/24	38.169	41.757	39.229	44.840	71	949	1.175	4.114
2024/25	38.915	42.791	40.001	46.118	72	1.020	1.172	4.346
2025/26	39.661	43.805	40.774	47.357	72	1.086	1.170	4.563
2026/27	40.407	44.803	41.547	48.565	73	1.148	1.167	4.766
2027/28	41.154	45.786	42.319	49.747	74	1.207	1.165	4.959
2028/29	41.900	46.759	43.092	50.908	75	1.263	1.162	5.141

Source: Preparation of CGAPI/DFI/SPA/MAPA and SIRE/Embrapa with data from IBGE, MDIC and Embrapa Dairy Cattle. \*Models used: For production, import and export PA model, for consumption arma model

Analyzing the data presented by MAPA, it is possible to observe two positive and two negative phenomena for Brazilian milk producers. The first positive factor is the 21.7% increase in production, as

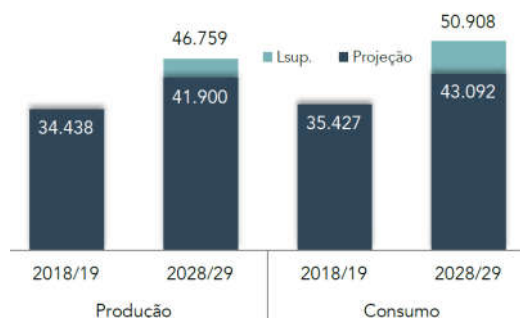
mentioned above, the hypotheses for this increase are genetic improvement and a better effectiveness of property management, as well as increased demand. Following the first data, the second positive phenomenon is the increase of 26.6% in milk consumption, proving that there will be an increase in demand, an important factor that brings safety and at the same time is encouraging for dairy producers to make investments thinking about the future. But also, it is perceived that production will not accompany the increase in consumption, bringing imbalance between demand and supply. In the following figure, we can graphically observe the positive phenomena, which are the increases, but we can also analyze the imbalance between supply and demand.

**Figure 2. Variation 2018/19 to 2028/29 in milk production, consumption, import and export (million litres)**

Variação % 2018/19 a 2028/29	
Produção	21,7%
Consumo	21,6%
Importação	10,2%
Exportação	-2,1%

Source: Preparation of CGAPI/DFI/SPA/MAPA and SIRE/Embrapa with data from IBGE, MDIC and Embrapa Dairy Cattle. \*Models used: For production, import and export PA model, for consumption arma model.

**Figure 3. Milk production and consumption (million liters)**



Source: Preparation of CGAPI/DFI/SPA/MAPA and SIRE/Embrapa with data from IBGE, MDIC and Embrapa Dairy Cattle. \*Models used: For production, import and export PA model, for consumption arma model.

**Figure 4. Import and export of Milk (million liters)**



Source: CGAPI/DFI/SPA/MAPA and SIRE/Embrapa

As has been previously ensured, Brazil is heading for a trend of fewer milk producers, with fewer animals, but with increased milk production due to investments in management, technologies, genetics and diets, which will increase milk quality and especially the amount of milk per cow. One of these investments that is gaining space in the country is the production system in compost barn, which will be presented in the next chapter.

**Milk production system in Compost Barn:** Compost Barn or bringing to the simple translation of Portuguese: "Composting Barn", aims at the confinement of animals in a large expanse of common

area, with sawdust bed or shaving, to provide maximum possible comfort, less stress, increased longevity and better sanity for cows, aiming at increasing and quality of milk production. In addition, it provides a better quality of life for workers. Another positive point of this system is that with it there is a greater release of the property area for other activities or for the production of feed (ASTIZ, 2014; BARRETO, 2017; BEWLEY, 2009; BLACK, 2013; BRITO, 2016; ENDRES and BARBERG, 2007; MARIANO, 2018; PEREIRA, 2017). With the data presented it is also possible to identify an unfavorable scenario for milk producers in Brazil, which is the projection of the 10.2% increase in milk imports, which will possibly lead to lower amounts paid to the product produced in the country. In this same sense, we will have a reduction of -2.1% in exports, which again brings a scenario that may cause the devaluation of the price paid to the domestic producer, due to the acquisition of the product with lower value from outside the country. The agro-industrial milk system in the country has undergone major changes since the beginning of the 1990s. The fluid milk segment experienced the deregulation of the sector after 46 years of government control in the establishment of price of type C milk. The reaction of the production chain seems to have been positive: there was intense reorganization in dairy cattle with increased competitiveness to face external competition. At the same time, there were new product and derivatives launches, the economic opening of the country and the formation of Mercosur. In Brazil, there was a concentration of dairy companies and the entry of multinational companies into the market. In parallel, there was a significant increase in the relative participation of UHT milk in the national fluid milk market.

In the same period, the Brazilian import of dairy products from Argentina, Uruguay, the European Union and New Zealand increased, countries that have prices below the average of those practiced in the international market, probably influenced by dumping measures. The National Confederation of Agriculture (CNA) began the dumping investigation process from July 1998 to June 1999. This possibility of imports, according to Barros et al. (2001), began to establish an upper price limit in the Brazilian milk segment (SANTOS and BARROS, 2006, p. 542).

In the following chart, you can see the forecast of the import and export of milk for the next ten years according to mapa. In this forecast it is possible to highlight that Brazil will have more consumption than production, and therefore it will be necessary to import milk, which as already presented previously, will cause imbalance between supply and demand that will result negatively for the price of domestic producers.

It emerged in the late 1980s in the state of Virginia in the United States, from adaptations of the old loose housing system [...] since then, several CB-type sheds are being used in many states in the United States, especially in the Midwest and Northeast, and in other countries such as Japan, China, Germany, Italy, the Netherlands, Israel, and recently, in Brazil. By the end of 2010, the number of CB increased significantly and was already around 58 in the US. This significant increase was indicative that the system proved to be economically reasonable and a good installation alternative for dairy farmers who wish to upgrade or modernize their milk production facilities (BRITO, 2016).

As much as the compost barn system originated in the 1980s in the United States, its space and growth were timidly around the world, including in the pioneer country, and only in 2010 there was a significant increase and greater acceptance of this format of dairy production. In Brazil we can say that this model recently arrived, as Barreto (2017, p. 40) presents:

In Brazil the system is still considered a novelty, however, many farms have acquired the idea, but still have a very large lack of information about the system. The great pioneer to implement this system in the country was Santa Andréa Auricularia, in March 2012. It has a dairy Simental breed, with 40 years of selection of SimentalFleckviehline, originating in Germany.

Currently has 220 lactating cows with an average of 27 kg/cow/day. The original idea was presented by veterinarians of the farm who together with the owners started a test shed for 50 animals, and that due to the success obtained was expanded to another 50. With positive results, they developed an upcoming project for the installation of 100 cows. The final project was for 1000 lactating cows by the year 2015, where the entire herd would be included.

The structure of the compost barn shed needs to follow some specifications for the results to be achieved. Among them: the shed should be designed with East-West orientation to better use of winds and reduce the direct incidence of sunlight inside. With this, the space will have more shade that will result in a better use of space by animals, who will not need to look for a space of shadow. Therefore, it is recommended that the height of the right lateral foot be around 4.8 meters, precisely to facilitate internal ventilation. In addition, natural ventilation is necessary to use mechanical fans to remove heat from the composting process and decrease the humidity of the bed, in addition, the fans also serve to dissipate the heat of the animals (BEWLEY, 2009; BLACK, 2013; BRITO, 2016; PEREIRA, 2017). Also needed a good space per animal. It is recommended that the space be between 09 and 15square meters per animal in the shed. In cases of animal overload, there will be an increase in the amount of moisture added to the bed, due to the feces and urine of cows, and the amount of compaction by animal traffic, prevents proper composting, thus losing the objective of the system (BEWLEY, 2009; BLACK, 2013; BRITO, 2016; PEREIRA, 2017).

The other structures of the sheds vary greatly from each property, but usually the concrete rod is around 1.2cmcm in height, to prevent the exit of the animals, keep the bed safe and avoid rainwater entry. In this sense, it is important during construction to place an eaves that will also prevent the bed from getting wet in rainy periods (ASTIZ, 2014; BARRETO, 2017; BEWLEY, 2009; BLACK, 2013; BRITO, 2016; ENDRES and BARBERG, 2007; MARIANO, 2018; PEREIRA, 2017). On the bed, it is as already mentioned earlier, usually consists of matters such as sawdust or shaving. Initially are dumped between 30 and 45 centimeters of material, which every two to five weeks are made repositions of 05 to 10cm to maintain a good composting process. It is extremely important that during scarification, a depth between 25 and 30 centimeters is reached, but with care that the ground below the bed is not touched, preventing an adobe from occurring that will cause bed compaction (ASTIZ, 2014; BARRETO, 2017; BEWLEY, 2009; BLACK, 2013; BRITO, 2016; ENDRES and BARBERG, 2007; MARIANO, 2018; PEREIRA, 2017). The Brazilian Agricultural Research Company – Embrapa carried out evaluations on farms that started to use the model in the period from 2015 to 2019, and concluded that there was an increase above 25% in milk production. In addition, in this evaluation they observed a higher quality of life of the animals and people working in these properties. In addition to the research carried out by Embrapa, several other researchers, such as: Astiz (2014), Barreto (2017), Bewley (2009), Black (2013), Brito (2016), Endres and Barberg (2007), Mariano (2018) and Pereira (2017), have numerous advantages with the compost barn system, even if for the implementation the investment is high. Next, field research will be presented that seeks to highlight in practice the thought and evaluation of some milk producers on the compost barn system, aiming to confront the thoughts of the researchers presented earlier.

**Evolution and opinion overpost barn by producers:** In order to identify the thinking and evaluation of producers who have the compost barn system, research was conducted with producers from the municipality of Quatro Pontes in western Paraná, which has a population estimated by the Brazilian Institute of Geography and Statistics - IBGE for 2020 of approximately 4,015 inhabitants. Its main economy is from agriculture and livestock. In the economic presentation of the municipality of Quatro Pontes, IBGE states that the city has one of the largest and best dairy basins in western Paraná, currently producing 11 million liters of a year and that with a little effort and investment can increase to 15 million liters a year. In research conducted with the secretariat of economic development of the municipality of Quatro Pontes, it was obtained that there are a total of 67 milk producers, who produce around 58,128 liters per day. Also, information was obtained from these producers, 15 are already working on the compost barn system, an expressive number, considering that the model is considered recent in Brazil. As a research method, we used in this study the choice of 03 of the 15 producers who work with compost barn, one pioneer in the system, another in intermediate time and another at the beginning of the process, to know the opinion and evaluation of this productive format. In addition, the profile of the 15 producers was also

collected, given these, provided by the economic development department of the municipality. The interviewees are two women and one man. Even of the total of producers 10 are men and 05 women. The selected ones will be named as Producer A who was the first producer in the municipality to invest in this model, Producer B who works with this system in a shorter period than the previous one, and Producer C who migrated only one month to this format, being the most recent producer in this system in the municipality. With this denomination will avoid the exposure of their identities. The two producers (A and C) are 21 years old and the producer (B) is 25 years old, a fact that draws attention, in addition to the young age of the three, the other producers in their average are also young. Of all producers in the compost barn modality, 04 have between 20 and 29 years, 07 between 30 and 39 years, 01 between 40 and 49 years and 03 between 50 and 59 years, being the average of 35 years. With this we can raise the hypothesis that young producers are more susceptible to investments in technology and modernity. Of the 15 producers, only two have complete higher education, including the producer named B, 11 with complete high school, 01 with incomplete high school and 01 with complete elementary school. Producers A and C have completed high school.

The reality of the municipality is mostly small estates and family farming character, something that is confirmed with almost all dairy farmers who use compost barn. Of the producers interviewed, Only Producer A has an employee, but only part-time, besides him and her, still work on the property with her father, mother, boyfriend and sister. Producer B, on the other hand, has the help of his father and mother, and occasionally needs outside workers. Producer C has the collaboration of her mother, stepfather and part-time brother, who even on the other half day works together with Producer A. Of the producers interviewed, Producer A owns property with an extension of 10 alqueires, Producer B has 40 alqueires and producer C 06 alqueires. As it is noticed that only Producer B owns a larger property. The two smaller producers (A and C), stated that they allocate all their property for dairy production, between constructions and pastures, while Producer B claimed to use 30 bushings for milk production and the rest for soybean planting. In the number of animals, producer A, which operates longer with the system, has the largest number: 152 heads, of these 98 cows, in which 69 are lactating and 29 dry that are approaching deliveries. 49 heifers ranging from newborns to others that are in the final stages of pregnancy, in addition to 05 males that will be destined for slaughter and consumption of the family. Following is Producer B, which has 105 heads, of these 56 cows in production, 05 dried cows, 44 heifers ranging from newborns to close to delivery and 05 males that will be destined for slaughter and own consumption. Finally, Producer C has 62 animals, of which 40 are cows, in which 33 are lactating and 07 in dry season, 17 heifers ranging from newborns to those that are close to the birth, still, 04 males for slaughter and own consumption and 01 breeding bull. We can consider the hypothesis that producers with more compost barn time, have more animals due to the cost benefit that this system brings, but hypothesis that can not be confirmed, due to other variables that appeared during the research, such as: Producer A has a greater number of people working on its property (between family and employee), another variable is that Producer B, even with greater territorial extension, has fewer cows because he acts part-time as a veterinary surgeon, which difficulties and makes it impossible to complete it on his property.

Another fact that draws attention is that only one producer has breeding bulls, and the others claimed to perform artificial insemination, and the producer when questioned, answered that it is used only in cows that after going through the process of insemination reclaim heat. Following in the same line, Producer A has the largest volume of milk, around 2,200 liters a day, Producer B 1,300 liters per day and Producer C 950 liters per day. Staying in this same sequence the average per cow day of: 32, 26 and 28 liters. Here it is noticed that the producer who is in the intermediate time of compost barn system is with lower average, but numerous variables can lead to this, such as: animal genetics, diet provided, diseases, large number of cows in the final phase of lactation and among others. Furthermore, it is worth mentioning that the three sell their production to private dairy products. The three producers interviewed came from family succession in the field of activity. Producer A stated that her grandparents started with dairy production, which even still reside on the property, so their parents continued with the activity, who also live in the same farm and currently she along with her boyfriend and her younger sister who administer lactation. She stated that when she finished her high school education, her father offered to help her with expenses in case she chose to attend a higher education or deliver the dairy part to her, and she preferred to continue the farm. Thus, the first investment she made was the implementation of the compost barn system, which is already more than five years old. Producer B manages the family property for nine years, giving succession to milk production initiated by his parents, who reside and work with him in the activity. The beginning in the compost barn model occurred after he graduated as a veterinarian, in which he aimed to apply the theory acquired during his graduation. Very similar to Production A, Producer C in the same way continued the dairy farm, an activity started by her grandfathers, in sequence by her parents and currently by her with the help of part-time of her brother,

but she is the main manager. According to her, the interest was given very early, when in childhood she lost her father in an accident, which required her and her brothers to help her mother in the activity, and when she finished her high school studies, the mother passed the farm to her, so, she is in the business for five years, but in the compost bar model is only a month. Therefore, it is clear and practically confirmable the hypothesis that young people have greater security to make investments in this sense. The three producers claim to respect at least 10m<sup>2</sup> per animal, and the bar of compost barn of producer A of 1,500m<sup>2</sup> – it is important to note that within this space are only cows and some heifers that are close to delivery - while producer B has two sheds, one of 800m<sup>2</sup> and the other of 400m<sup>2</sup>, in these cows are divided into four groups: first group of cows at the peak of lactation, second of cows a less volume of milk than in the first group, third of those that are in phase to be dried and those that are likely to be discarded in the fourth group the dry and pregnant heifers. On the other hand, producer C has its structure with 800m<sup>2</sup> with only one division, leaving in one space the lactating cows and in the other the dried cows and heifers close to delivery.

A factor that drew attention in the interviews was when the interviewees were asked if the compost barn is appropriate, if they would change something and if for the future it will remain fit. After this dialogue with the producers, it became clear that the longer the model has, the more things would change. This occurs - and something that was even clear in the answers - because the system is something new in the country. Producer A, who was the first in the municipality to implement this form of production, states that the first change she would make would be to make divisions in the facility, because when she built, she only made a bed without partitions, and today he needs to manually make distributions for separation of cows into groups (the best, medians, sick, dry and heifers). The second change she understands to be pertinent is the placement of a balcony, to prevent rainwater from wetting the bed and not having so much heat from the sun. Currently it has a curtain system, but it did not approve due to the difficulty of handling and the rapid depreciation. And finally, currently the construction of the barn compost is far from the milking parlor and the feeding shed, and so cows need to spend a lot of energy on the paths to these environments, and for this reason, another change she would make would be to build closer. But, the producer pondered that at the time she planned the building, she had few examples to mirror, and even then, she sought to analyze those that already exist in other locations. On the other hand, Producer B, considers that currently the two sheds are fit, but is aware that in the future to have the negative pressure system, will need to make adjustments. And Producer C, because she finished her installation only one month, claims to be totally satisfied with her compost barn, because the negative notes presented by the other two producers are already adequate in her shed, this occurs, as the producer herself stated, due to the various examples she could analyze and talk to other producers, including producer A. When asked about the main differences that the producers perceived from the normal system to the compost barn, the answers were positivist. Producer A stated that the main difference is the sanity of animals, according to her, improved significantly. For the producer the issue of health is visible in rainy times or on very hot or cold days. She adds that the farm is investing massively in genetics, something that was not possible in the previous system, because for her cows need comfort and little stress to receive this investment. Finally, the producer stressed that it also improved the quality of life of workers.

As a negative point, the three producers stated that the main one is the high value needed for investment, so much so that all needed to finance part of the system. In addition, the two older producers of the model (A and B) also pointed to a high cost with the replacement of the matter for the bed and the increase in electricity consumption. Finally, Producer B found an increase in hull problems that he believes are caused by the fact that cows are in a soft bed and have no contact with the land. On the resources for implementation, Producer A invested R\$ 240,000 at the time, almost all of which were financed with the bank for payment in eight years, but she considers that the investment is paid, due to increased production, lower animal mortality rate and lower cost for treatment of sick animals. For her, it is a cost benefit, in which she is able to pay easily. On the other hand, producer B, who has two sheds with a difference of one year, invested R\$ 170,000 in the 800m<sup>2</sup> and R\$ 100,000 in the 400m<sup>2</sup>, both with a percentage financed by the bank, but at the time of the research he did not remember the exact values. For him the cost benefit is that it is paid, both in the quality of life available to the cows, as for him and his family who work with them. Producer C financed the value of the shed with the bank, in the amount of R\$ 147,000, to pay an annual portion for eight years, and the rest of the installation (fans, masons' labor and other necessary elements) paid with the savings made. But for her the investment is paid in the short term, due to the increase in production and with this has more security to increase the number of animals and produce even more. As they are asked about the financial resources of implementation and what opinion about the return on investment, producers with great security state that in fact the value is high, but feel security and tranquility due to the return they have with the productive increase and reduction of costs with medicines and treatments, in

addition to bringing an intrinsic return that is the cost benefit. On the increase in milk production per cow after the change of the grazing system to the compost barn, Producer A stated that in three years of existence its compost barn had an increase of 08 liters of milk per day. He also stated that after a year of this model, there was already an increase of 06 liters per animal per day. With this line of reasoning, the hypothesis of the system give feedback is real, taking the example of this producer who has 69 lactating cows, and increase 08 liters in each cow will total 552 liters more per day, and we multiplied by 30 days will be 16,560 liters more in the month, and multiply by the amount paid per liter that was R \$ 2.25 in the month of the research, the producer will receive R\$ 37,260 more in its payment. Logically that here we are just presenting hypothetically, without discounting costs, but, looking through this bias, really the investment seems to be profitable. Producer B also stated that he noticed an increase of around 10% in production per animal. And interestingly, Producer C, which had migrated only one month to this model, had already registered more than 10% day per cow, thus demonstrating the effectiveness of the system.

When asked about the quality of life and longevity of cows, there was divergence in the answers. The three producers stated that it greatly improved the quality of life of cows due to less energy expenditure in the search for pastures, less stress and more comfort. But only producers A and C ensured that longevity increased. They mentioned that when the animals were grazing, they had mortality of around 05 animals per year, and that after migration to the compost barn system, it fell to a maximum of one. Another positive factor in longevity is not only the fact that the producer will have more time of milk production of the cow, but also the possibility of it giving birth more often and thereby increasing the number of matrices. On the other hand, Producer B, said that since he migrated to this system, he has reduced the life of cows, believing that it is due to the larger exploitation. With this, it is difficult to measure the life of cows, due to the divergence in response. A hypothesis that the specific problem is in the property of Producer B, but to confirm or not, it will be necessary a study directed to this theme. In addition to the quality of life of cows and workers with the compost barn system, which has been confirmed several times in this research, one wondered about the improvement in milk quality, and according to the three producers there was yes, mainly in the counting of somatic cells - CCS and in the total bacterial count - CBT, two factors that help to define quality and subsequently price paid per liter of milk. On the price, producers do not receive directly any more value in the liter of milk for having migrated to this system, but received indirectly due to the improvement of milk quality, caused by compost barn. Finally, the producers were asked if they had regretted the investment made and if in the current scenario, they would do it again, and the three replied that at no time regretted the investment made, and ensured that they would do it again, including Producer A said that it has as a project the construction of another for the heifers that are currently still in the grazing system. Thus, it is the approval of milk producers in the municipality of Quatro Pontes - PR with the compost barn system, bringing through this field research numerous compliments and rare negative notes.

## FINAL CONSIDERATIONS

Even though the production system in compost barn sprung up in the 1980s, its growth was timid around the world. In Brazil it gained higher proportions after the year 2010, when the country also had good participation in the international milk market. In several studies conducted in bibliographic materials, more advantages were identified than disadvantages of this system, and for this reason this research was carried out to try to identify in practice the reality of compost barn. For this, the research was carried out in the municipality of Quatro Pontes-PR, a locality with significant expression in the dairy sector. After conducting the research with producers, it is possible to affirm that the system has great acceptance even with the high cost of investment, due to the advantages it brings to animals and to the workers themselves, especially in matters of management, health, quality of life of cows and workers, increased production and comfort ...

It was also identified a young profile in the producers who are investing in the compost barn system that in addition to this investment perform the same with improvement of genetics, diet and comfort, to ensure increased productivity and thus better financial results. Therefore, after conducting bibliographic research confronted with the responses of the interviewed producers, it is possible to affirm that the compost barn system is advantageous and attractive, and can be considered a benefit cost for milk properties. But it is necessary to emphasize that only the system will not bring satisfactory results, it should be allied mainly to an optimal management of the property, accompanied by genetic improvement, diet and other elements involved in the production.

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