

Milk-related life

1. Motivation behind Research Paper

Do you know how much life is involved in a cow? I never thought about it. That's because I took it for granted that cows had only one life. I'm sure most people think so. There's a reason why I'm interested in this question. When I thought of animals, I thought that my relationship with them was inseparable. That's because we are killing and eating animals to survive. But recently, there's a lot of leftovers. I chose this theme because I wanted to find and practise what I could do so that I wouldn't waste even a little of animal life. I'm going to think about what I can do, and I'm going to talk about what I've done.

2. Introduction

In order not to create excess waste in our lives, we thought about eliminating leftovers. Recently, however, the problem is that there is a lot of leftovers such as milk and meat. An example of this is school lunches. Focus was therefore put on cattle and livestock. Cows are divided into two types, beef cattle and dairy cows. Meat can only be obtained by killing animals. In other words, many people may think that life is directly related to meat. But many people may think that milk is not directly related to life. That's because milk can be obtained from a live cow, so the cow does not have to be killed but some cows are killed if they run out of milk. From this, we thought that we humans may be making light of milk-related lives and wasting animal

life. It is said that the average life expectancy of cows is 12 years, but dairy cows are killed after about seven years. Within about seven years, the cow becomes pregnant and gives birth. In the case of cattle, when the cow and calf are in danger, the priority is given to the cow as calves can't produce milk right after birth. But, is there only one cow's life involved in milk? We decided to calculate because we don't think so.

3. Results and Analysis

Life-threatening quantification of a bottle of milk

We live on animals. Animals also live on insects and plants. In particular, dairy cows live on compound feed and pasture. Therefore, it was assumed that since cows live on the life of plants, plants also have life. This means that we consume not only cows but also plants, so we consume the lives of cows and plants in total. So we decided to quantify how many lives are involved in a bottle of milk. We wanted people to know that there is a deep connection between milk and life by visualising the number of lives involved in milk and communicating the results to people. First, we thought of a way to quantify the life of a bottle of milk based on the amount of beef we eat. To do so, we visited Uemura Farm in Nara City to find out what dairy cows eat.



Figure 1. Barn at Uemura Farm in Nara City

Established in 1896, Uemura Farm is the oldest farm in the prefecture and is located in the town of Hannyakuji Town, Nara City, Nara Prefecture. In addition to visiting the farm, you can also taste fresh milk and soft ice cream. The breed of dairy cattle raised in Uemura Farm is Holstein (also known as Holstein-Freisian). Holstein is the most commonly kept cow in the world. They are said to be economically good cows because they are large, produce a lot of milk, and have good quality meat, so they can ship male and female cows with poor milk production for meat. Not raised at Uemura Farm, but besides Holstein, there are dairy cows such as Jersey, Brown Swiss, Ayrshire and Guernsey. When we asked the farm, they explained that the cows eat twice a day. The main foods are pasture (about 25.6 kg) and 15 kg of compound feed per cow. The compound feed includes corn, beer lees and cotton seeds. In addition to these, dairy cows at Uemura Farm ate local food (such as vegetables grown by neighbours that are not fit for sale). We focused on the corn in the compound feed. In our study, as a definition of the weight of life, a corn was used as the weight of one life. We had a portion of the mixed feed (collected in four bags) and a bag of mixed feed containing only corn separated at Uemura Farm.



Figure 2. Compound feed used at Uemura Farm in Nara City

From these samples, we examined how much corn was contained in the following steps:

1. Divide the four bags of compound feed received with corn and other ingredients.
2. Measure the amount of corn contained in each of the four bags and the amount of other parts, and weigh the average weight to determine how much corn is contained in the compound feed.

15kg=15000g
the amount of food eaten per day : the amount of corn eaten per day
= the total quantity of a bag : the amount of corn in a bag

<p>Bag of A</p> <p>Total 279.1g</p> <p>Corn 128.8g</p> <p>15000 : x = 279.1 : 128.8</p> <p>x = 6922.25008957</p>	<p>Bag of B</p> <p>Total 141.4g</p> <p>Corn 63.8g</p> <p>15000 : x = 141.4 : 63.8</p> <p>x = 6768.03394625</p>
<p>Bag of C</p> <p>Total 123.5g</p> <p>Corn 54.1g</p> <p>15000 : x = 123.5 : 54.1</p> <p>x = 6570.85020243</p>	<p>Bag of D</p> <p>Total 209.5g</p> <p>Corn 96.3g</p> <p>15000 : x = 209.5 : 96.3</p> <p>x = 6894.98806683</p>

Figure 3. Calculations of corn in sample from Uemura Farm

The amount of fruit contained in corn was thus examined using the following steps:

1. Buy corn at a supermarket, divide it into nuts and cores, and dry it.
2. Weigh the dried corn (based on the weight of a single corn).

3. We ask for the average weight of four bags of corn \div weight of dried corn =
number of items

Result of an experiment:

	Number	Weight (g)
1 day	79	6,789
1 year	28,714	2,477,985
Life time	200,998	17,345,895

Figure 4. Results of the experiment

Sharing of research findings - How do I reduce the amount of milk left over?

From sharing the findings, we asked students how to reduce leftover milk during their global exploration.

- An opinion that has emerged from
- Serve milk and milk at school
- Serve milk only on bread day
- Leave milk first when one doesn't drink it
- Make picture books and drink milk every day to see what kind of home milk is reaching us
- Have elementary school students read what we did into picture books
- Post an awareness poster in the milk section of the supermarket to reduce leftovers
- Not stock up on milk

Based on this opinion, we thought that using milk makeup could be an opportunity for people who don't usually drink milk to drink it. That's because some people don't like the taste of milk, and we thought we could try to make it easier for people who are reluctant to drink milk. However, it is difficult to distribute milk makeup because of its cost and calories. It is also difficult to serve milk only on bread days because of calorie control. Therefore, we believe that telling people about the importance of life is what we can do now to reduce leftover milk.

4. Conclusion and Future Problems

We found, through experiments, that there were a huge number of lives involved. But, there is a point of reflection. It is said that we could not make calculations including pasture. There is a reason why calculations including pasture couldn't be made. First, it was difficult to obtain information about pastures because they were imported from overseas. Also, we couldn't think of how to convert pasture into life. The cattle feed mainly on pasture. But, when calculated without pasture, about 200,000 lives are involved before dairy cows are abandoned. In other words, if you include pasture, you can see that the figure is well over 200,000. Many people think that cows only have to do with their lives. But, I understood the weight of life that we could not see. In other words, since milk involves many lives, it can be said that leftover milk is a waste of life. I don't think we should waste our lives. It will be something we can do in our daily lives to enjoy without leaving any life behind.

5. Reflection

The animals we usually eat are one life in a visible form. However, the numerical representation of the relationship between life made it possible to think

that it was not just one life. In other words, I understood the weight of life. Through this exploration, I was able to think deeply about things that I had never thought about before. Up until now, I had no resistance to leaving food behind, but now I can't throw it away easily. In fact, I began to think about what was left of dinner, such as breakfast the next day. This exploration made us realise once again what the weight of life is and what we can do to avoid wasting it. I sincerely hope that everyone who has read this paper will understand my feelings and not waste their lives. I hope this research paper will be read by as many people as possible. When my thoughts were conveyed to many people, their consciousness changed, and the number of leftovers decreased. I suspect that this exploration was successful for the first time. I don't know when it will be, but there is no end to my quest. I thought I had to keep thinking about the sparkle of life.

6. Work Cited

Toshi Sato, Natsuki Yasuda "Milk of happiness." 2018.3.15. Print.