

## **The Weight of Life**

### 1. Motivation behind Research Paper

I am researching the value of life. I am especially researching how many lives are related to a bottle of milk. When I was deciding the topic of my research, I found a video about animal slaughter. It was my first time seeing this. Slaughter is the act of killing the animals to make meat. The way of slaughter is giving electric shocks and cutting carotid arteries. After seeing the video, I became interested in the production of meat, eggs and milk. I became interested in how the lives related to milk come to us too.

I also realised that animals are deeply related to meat, egg and milk, and I realised that we receive life from animals too. For these reasons, I decided to research the life of livestock. When I got the information about livestock, we could easily think about life with meat and eggs, but it is difficult to associate milk with life. On the other hand, when I was an elementary school and junior high school student, the milk that was given to us as a part of the school lunch was thrown away. I think if I calculated the number of lives that were related to the milk and expressed it through data, people would be able to understand the value of life and I think that leftover milk would decrease around the world.

### 2. Introduction

We are living in exchange for the lives of other creatures. What can we do to not waste a lot of lives? We think that to stop throwing away food is a good thing. We often eat meat, milk, eggs and so on, however it is a problem to throw away these foods. Especially, if we focus on the production of milk and the lives that are lost in the process. There are two kinds of cows, beef cows and milk cows. If we want to get beef, we have to kill beef cows, so many people can think beef is related to life easily, but milk is not. We do not have to kill to get milk, so many people think milk and life are not related. From these things, we should think more about the importance of killing and not killing during the food obtaining process. Cows are killed when they cannot produce a lot of milk, so we think if we throw away the milk, it is a waste of life. Livestock is an animal that is kept and bred by humans. People imagine the livestock animals are cows, pigs and chicken and so on, that is the purpose of getting food. Also, people have dogs, cats and mice, so they are livestock animals too. Milk cows are the kind of cows that are used to get milk. The most common type of milk cow is the Holstein cow. They cannot live in areas with high-temperatures and humidity, so in Japan, most of them live in Hokkaido.

Normal cows' lifespan is about 12 years, but a milk cow's lifespan is about 7 years. Almost all of them have offspring. Giving birth is dangerous. If a mother and child are put in dangerous situations during birth, the veterinarian must save both lives. On the other hand, in the case of cows, the animal doctor saves the mother cows' life first. Why do mothers' cows live first ? It is because milk cannot be obtained from a calf. Milk cows live so humans can take their milk. Exactly how many lives are taken in the milk production process?

### 3. Results and Analysis - Calculation of life including milk

We thought most people make light of life related lives. Most people think of a bottle of milk, including one cow too. We are living to eat the many animals in this earth. Animals are living to eat insects and plants. Milk cows are living to eat mixed food and grass. Therefore, milk cows gave life to plants, so we assumed plants have life. These things, we consumed cow and plant life.

We decided to calculate how many lives are including in a bottle of milk. It is because if we calculate this, we can tell that milk and life are deeply related. My group and I visited the Uemura ranch in Nara city, and we researched what food milk cows eat. (Picture 1) Uemura ranch is the oldest ranch in Nara. It is located in Nara Prefecture, Nara city, Hannyaji Town. People can see the different parts of a ranch, but also they can drink delicious milk and eat soft cream. The Uemura ranch has a lot of cows that are kind of like Holstein. The Holstein is the most popular milk cow in the world. They have big bodies, can produce a lot of milk, and the meat is good. This is said to be a good economic cow by farmers because we can sell the male cows and the female cows that cannot produce a lot of milk. There are different kinds of milk cows, such as Jersey dairy cows, Brown Swiss, Ayrshire, and Guernsey breeds and so on.



*Figure 1. Uemura Ranch*



*Figure 2. Mix feed*

We learn that the cows eat food twice a day. The cows eat a piece of grass (about 25.6kg) and mix feed (about 15kg). The mix feed includes corn, beer grains, cotton seeds and so on. We were focused on the corn of the mix feed. In our research, we define one corn is equal to one life.

We got four bags of mixed feed and a bag of only corn. (Figure 2)

We used these samples to research life numbers.

1. Divide the feed received into corn and non-corn feed.
2. Weigh the amount of corn and others in four bags, and research the average weight.

$15\text{kg} = 15000\text{g}$	
Amount to eat per day : Amount of corn eaten per day = Total amount in one bag : Amount of corn in one bag	
A	B
Total 279.1g	Total 141.4g
Corn 128.8g	Corn 63.8g
$15000 : x = 279.1 : 128.8$	$15000 : x = 141.4 : 63.8$
$x = 6922.25008957$	$x = 6768.03394625$
C	D
Total 123.5g	Total 209.5g
Corn 54.1g	Corn 96.3g
$15000 : x = 123.5 : 54.1$	$15000 : x = 209.5 : 96.3$
$x = 6570.85020243$	$x = 6894.98806683$

*Figure 3. Calculation showing the life in cow feed*

Next, I also researched how much corn has fruit.

1. Buy the corn at the supermarket. The corn divides into core and fruit parts, before drying
2. Weigh the amount of dried corn. (Also weigh fresh corn)
3. Calculate the average of corns weight in 4 bags  $\div$  dried corns weight = Number

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

*Figure 4. Feed including corn*

From these results, we could demonstrate that it turns out that about 200,000 ears of corn, or 200,000 lives, are involved in the process of slaughtering a dairy cow. Cows produce the milk of 76650 L in a lifetime.  $200,000 \text{ (lives)} \div 76650 \text{ (L)} = 2.60926288324 \text{ (lives)}$  This result shows how many lives are included in 1L of milk. We can learn that 1L milk includes 2.6 lives. Cows always eat not only corn but also cotton, alcohol chips and grass, so I think milk includes more lives.

#### Share of research result- How we can reduce the amount of wasted milk

We shared the result of our research and we asked our fellow classmates how do you reduce the amount of wasted milk.

#### Analysis

1. Provide milmake at school lunch.
2. Provide milk only on bread day.
3. When you do not drink milk, leave it from the beginning.
4. Make a picture book about how milk gets to us to help people realise the importance of cows,
5. Put up awareness posters in the milk section of supermarkets.

## 6. Don't hoard milk.

From these opinions, I thought it was important to devise ways to not leave milk behind. There are things that are difficult to do, but I think the most effective thing is to learn about the importance of life.

## 4. Conclusion and Future Problems

We learned that milk is related to a lot of life by this experiment. Although there are still some things that we need to think about. That is we could not calculate whether to include grass and so on. We have a reason why we could not do it. Most farmers get grass from abroad, so it is difficult to get it for us here in Japan. We cannot think of a good way to change grass to life. Cows eat a lot of grass however if we calculate the amount of grass, 200,000 lives are related to cows. If we think about how many lives are related to cows, most people think of only one life, but the process of milk production involves a lot of lives that we cannot see. This result shows that if we throw away milk, it is equal to throwing away lives too. I think we should stop throwing milk away. In daily life, it is important to drink and eat food.

## 5. Reflection

I learned that milk, eggs, meat and so on are related to a lot of different creatures' lives in this research. I think I am sorry to waste a lot of food (lives). I used to think that milk was unrelated to many lives, so I used to always waste milk in junior high school. Nowadays, I drink it all. Not only that, I came up with some ideas to not waste food. For example, when I am unable to finish my food in restaurants, instead of throwing it away, I should bring my food home. Many people understand

that animals give us life, however many people waste food easily too. I want a resort that does not waste food and the lives of animals and plants.

#### 6. Work Cited

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