Pathogen and treatment comparison of an organic dairy in the United States and an organic dairy in the United Kingdom as it effects the physical well-being of the dairy animals.

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Abstract

This analysis consists of quantitative and qualitative analyses of diseases, treatments given, and treatment withdrawal periods in dairy cows on an organic dairy farm in the United States and an organic dairy in the United Kingdom. This analysis, as well as personal communications with the organic producers and farm-hands at these two farms and evaluation of each country's laws concerning organic milk production, labeling, and handling, will be used to determine if policies and restrictions placed on organic dairies in the United States are better or worse for the well-being of the animals involved than the policies and restrictions on organic dairies in the United Kingdom.

Keywords: organic, dairy, diseases, cattle

Introduction:

There has not been any research found inquiring into any comparisons between organic dairies in the United States and the United Kingdom. Only a small amount of study has been done regarding diseases in organic dairies in the United States, most in relation to mastitis. Two articles that were found and evaluated were from the University of Wisconsin's Extension office and related the fact that if a disease is a perceived threat then it is diagnosed more often, if the disease is diagnosed on the farm more often then it is perceived as problematic, and producers that have a more broad disease screening and definition will likely diagnose that disease more often [10, 18].

The objective of this study's analysis is to determine if the rate of pathogenicity in dairy cows in organic dairies is greater in the United Kingdom or in the United States and how that reflects the differences in organic standard policies in these countries as established by the United States Department of Agriculture and the European Union's Department of Agriculture and Rural Development. It is hypothesized that it will be found that the pathogen incidence rate is greater in United States organic dairies than in the United Kingdom organic dairies.

The two farms were selected for this analysis, Langley Hill Farm in Winchcombe, Gloucestershire, United Kingdom, and the Land of Milk and Honey (LOMAH) in Wyandotte, Oklahoma, United States. Both follow organic production standards based on their country's policies.

Langley Hill Farm

Langley Hill Farm is owned by Michael Abbott and managed by Jamie Dyce and consists of approximately 150 cows that are either Holstein-Friesian or Brown Swiss. Holstein-Friesians are the most commonly recognized large dairy breed and produce 90% of the world's milk [5]. Holstein-Friesians are characterized by their large black and white spots that make them the instantly recognizable. Brown Swiss are another large dairy breed and are rapidly gaining popularity in the United Kingdom due to their high production and can be anywhere from a very light tan to black.

As per organic standards in the United Kingdom, no sprays, artificial fertilizers, or genetically modified (GM) substances are used in the fields and the cows are grazed on high nitrogen crops, such as clover, at pasture and are additionally fed whole-crop (barley) silage, grass silage and a cereal blend. In the absence of synthetic herbicides, there are many unwanted plants that can grow in the pastures, such as thistles and nettles, which can cause problems when the grass is fermented into silage. All records at Langley Hill Farm are detailed and kept for a minimum of three years. For this evaluation, all conditions and treatments from May 2012 through May 2013 were collected and analyzed.

United States Department of Agriculture National Organic Program

In order to properly address this comparison even further, it is important to have a general understanding of the differences found between the regulation of these organic dairy farms. The Organic Foods Production Act (OFPA), which was enacted under the 1990 Farm Bill, was the basis for establishing national standards for organic food production and handling. This

authorized the United States Department of Agriculture (USDA) to begin the National Organic Program (NOP) and establish its new set of standards for all products labeled and sold as "organic" [14]. The standards include forbidding the use of synthetic pesticides on pastures, genetically-modified organism (GMO) derived products, and synthetic preservatives in all health care and feed products [9]. According to the Code of Federal Regulations, Title 7, Part 205, Subpart C, Section 205.238, organic farmers are responsible for selecting breeds of cattle that have a high suitability for the specific conditions at the farm site, including a substantial resistance to common parasites and diseases in that area, which can be a challenge at times since there are times when something such as a dewormer is needed despite the breed of cattle, but is not available for use due to restrictions. This section also forbids the use of growth hormones, routine synthetic parasiticides, or any prophylactic animal drug in the absence of illness or need [7]. Despite these restrictions, medical treatment cannot be withheld from an animal, however, if the use of any of these substances is required for the safety and well-being of the animal, it must be used, but the cow will lose organic status permanently and no part of it may be sold or labeled as "organic". Livestock must be fed 100% organic agriculturally produced products, but the administration of additional vitamins and minerals are permitted [13].

Department of Agriculture and Rural Development

In the United Kingdom, regulations are slightly different. The UK follows the European Union's (EU) guidelines set up by the Department of Agriculture and Rural Development. These state that veterinary medications and antibiotics cannot be used as preventative medicines and may only be administered on an individual basis and all records must be recorded and

maintained *[13]*. If these medicines are required to treat a disease, then the cow must go through a withdrawal period that is twice the legal withdrawal period for that drug. Vaccinations are only allowed in areas that are known to have a high disease risk *[13]*. Veterinary treatment given three times within a year causes a cow, or herd if necessary, to lose organic status; however, these cows can normally undergo another transitional period to regain organic status.

Land of Milk and Honey

The Land of Milk and Honey Farm is owned and operated by Dr. Donna Johnson and milks approximately 60 Jerseys milked at a time, but there are 90 total cows in the herd. Jerseys are much smaller bodied cows and produce less milk per cow than larger dairy breeds, but are well known producers of much more butterfat and protein in their milk than Holsteins. Jerseys have an average weight of approximately 900 pounds, however, they are capable of producing more milk per pound of bodyweight than any other breed of dairy cow [6].

LOMAH follows all organic practices, however, they use more efficacious dewormers and some additional medications that typically aren't permitted under organic regulations, but this is done purely for the safety of the animals because the owners feel that a farm ran strictly by organic standards is not in the best interest of the animals involved since they would not have access to many of the necessary medications to maintain a healthy herd for their region.

Methodology:

The organic dairy in the United Kingdom, Langley Hill Farm in Winchcombe, Gloucestershire, was visited for a total of three weeks in the summer of 2013. Data was collected and time was spent with the owners and farm-hands at the dairy discussing and observing the benefits and problems in owning and operating an organic dairy. Records are retained for a minimum of three years at Langley Hill and include which cow was treated and for what reason, the date of treatment, and the type of treatment. Due to the amount of mastitis cases at Langley Hill, all mastitis records were recorded separately so as not to get them mixed up with the non-lactation related instances. The data obtained spanned from May of 2012 through May of 2013.

The data from the farm in Oklahoma, Land of Milk and Honey (LOMAH) farm, was provided by Dr. Donna Johnson via email correspondence due to the beginning of the fall 2013 semester and a lack of time for hands-on experience and observation at the farm. Data for the year 2012 was provided and includes milk production and butterfat content per cow, sicknesses, and treatments administered

This data was evaluated to determine what conditions and treatments were most common in the herds. Tables representing the data were made in order to organize it and then it was put into graphs for better visualization of monthly statistics. The percentages of common or similar illnesses were also compared between the herds.

Results:

Much less data was provided for the Land of Milk and Honey farm due to a much smaller herd size which would indicate much lower disease rates. There were a total of 90 cows at LOMAH farm with 60 of them in lactation at one time. That is merely 40% of the lactating herd size at Langley Hill, where there are typically 150 cows in lactation at one time. This number may vary, however, depending on how many cows are inseminated in a particular time-frame and when they will be ready to be dried off before calving (approximately 54 days before calving).

All of the conditions that the Land of Milk and Honey farm had diagnosed and treated for over the course of the year 2012 are listed in *Table 1*, which also lists the average production of individual cows and their butterfat content. There were a total of 60 cows in the production line for 2012, but the 15 that were found to have high somatic cell counts were pulled from production (one-fourth of the lactating population). Aside from these cows, there were two other cows that were removed from production for a time. One had eaten a rope and had to undergo a rumenotomy in order to have the rope removed and was then given Baytril as a post-operative antibiotic. The second was diagnosed with lymphosarcoma and therefore had to be euthanized.

Conditions at Langley Hill Farm such as lameness, high fever, low temperature, abscesses, and loose stool made up the majority of these evaluations that are addressed in *Table 2*. Out of the 27 cases that were treated, 13 were due to lameness. 8 out of these 27 total miscellaneous cases, 30% of cases, involved treatment with Amoxypen, an amoxicillin-based injectable antibiotic (See *Table 4*).

Table 3 describes all cases of mastitis that were observed and treated at Langley Hill farm, a total of 38 in a year's time out of 150 cows. Intramammary suspensions of Cobactan, where one tube of Cobactan is one dose per teat, were administered into the affected teats, and in some instances, the additional administration of injected Tylan or Cobactan, which are additional antibiotics (see *Table 4*), was necessary.

Table 4 is a description of the antibiotics that were used at Langley Hill farm that includes methods of administration, the strength of the medication, what the standard recommended withdrawal period is for conventional dairy cattle, and what class of antibiotic each one is (when that information was available).

Table 1

Land of Milk and Honey, Wyandotte, Oklahoma (2012)			
Production/Year/Cow	# Pulled for High Somatic Cell Count (SCC)	Illnesses	Butterfat
16,500lbs	15	Rumenotomy (surgically removed rope from rumen, Baytril inj.)	5.2
		Lymphosarcoma (euthanized)	

Table 1 addresses the conditions that the Land of Milk and Honey farm had in 2012, as well as lists the average production of individual cows and their butterfat content.

Table 2

Langley Hill Dairy, Winchcombe, Gloucestershire, United Kingdom
General Cases (May 2012-May 2013)

Date	COW	Problem	Medication
5/25/2012	474	Sick, High Temp	4X 25mL Amoxypen
6/4/2012	474	Sick	4X 33mL Amoxypen
7/4/2012	323	Twig in foot	2X 30mL Amoxypen
7/9/2012	516	abscess	3X 33mL Amoxypen
7/13/2012	367	lame BL Foul	20mL Naxcel
7/13/2012	346	Lame BR	Block
7/16/2012	426	metritis, 103°	3X 33mL Amoxypen
7/20/2012	330	V. Lame BL	20mL Fin. & 20mL Engem.
7/27/2012	330	lame BL	24mL Engem. + 20mL Engem.
7/27/2012	397	Lame BL	20mL Naxcel
8/1/2012	480	Lame BL, Necrosis	50mL Eng.
7/28/2012	358	Sick, Low Temp	3X 33mL Amoxypen; Magnet; Dexap.
8/21/2012	522	Loose Stool, Blood in Intestine	3X30mL Buscopan; 3X30mL Pen & Strep
8/30/2012	434	Lost Calf	1X 20mL Finadyre; 3X 30mL Pen & strep
9/2/2012	531	Summ. Mast. FR	20mL Finadyre;
9/3/2012	449	Lame BR	20mL Naxcel
9/29/2012	360	Lame BL	20mL Naxcel
9/30/2012	350	Down	25mL Finadyre and 33mL Pen & Strep
11/12/2012	526	Abscess BL Leg	3X 33mL Amoxypen
12/2/2012	397	Sick after calving	Calc (Vet Admin)
12/29/2012	337	Stuck in Cubicles	25mL Finadyre
12/17/2012	274	Lame BR	7X 25mL Engem
1/3/2013	274	Lame BR	6X 30mL Alamycin + Vet inserted wash out tube
2/25/2013	531	Lame BR	Cob Tube + 20mL Naxcel
4/26/2013	390	Lame BR Swollen	20mL Naxcel
5/13/2013	413	Lame BR Inter-digital Swollen	20mL Naxcel

Table 2 lists the general illnesses that were observed and treated at Langley Hill farm from May 2012 to May 2013.

Table 3

Langley Hill Dairy, Winchcombe, Gloucestershire, United Kingdom Mastitis Cases (May 2012-May 2013)

Date	Cow	Location of Infection	# Tubes of Cobactan	Additional Meds
5/13/2012	517	FL	1	
5/15/2012	678	FR	6	3X 20mL Tylan
5/25/2012	224	FL	6	
6/4/2012	520	BR	6	3X 20mL Tylan
7/6/2012	324	BR	6	
7/6/2012	393	FR	6	
7/22/2012	422	FL	6	3X 20mL Tylan
7/22/2012	414	BL	6	
8/6/2012	464	FR	6	2X 20mL Tylan
8/28/2012	405	BL	6	2X 20mL Tylan
9/7/2012	350	FL, BL BR	18	3X 20mL Tylan
9/10/2012	426	FL, BL BR	12	3X 20mL Tylan
9/14/2012	316	FR, BR	12	3X 25mL Cob
9/20/2012	368	FR	6	3X 20mL Tylan
9/26/2012	429	FR	6	3X 25mL Cob
10/19/2012	349	BR, FR	10	3X 20mL Tylan
10/22/2012	376	FR, BL	12	3X 25mL Cob
11/9/2012	430	FL	6	2X 20mL Tylan
11/16/2012	64	FL, BL	12	3X 20mL Tylan
11/26/2012	472	BR	6	3X 20mL Tylan
12/7/2012	316	BL	7	3X 20mL Tylan
12/22/2012	501	FR	6	3X 20mL Tylan
1/1/2013	531	BR	13	3X 25mL Cob
1/13/2013	307	BL	6	
1/18/2013	316	FR, FR	14	4X 25mL Cob
2/6/2013	536	BR	6	
2/20/2013	536	FL	6	
2/19/2013	537	BR,FR,FL	16	3X 25mL Cob
3/15/2013	435	FR,BL	12	
3/27/2013	422	FR	6	3X 25mL Tylan
3/29/2013	410	BL	7	3X 25mL Tylan
4/17/2013	403	FL	6	3X 20mL Tylan
4/17/2013	340	FL	6	3X 20mL Tylan
4/22/2013	267	FR	6	3X 20mL Tylan
5/1/2013	403	FR	6	
5/22/2013	536	FL, FL	12	
5/25/2013	435	FL	6	
5/24/2013	429	BR	7	3X 25mL Cob

Table 3 shows all mastitis records from Langley Hill Farm from May 2012 to May 2013. Also shows which teats were affected and how the infection was treated.

Table 4

Explanation of Medications

MED	Standard Withdrawal	Purpose	Type/Class	Admin Method
Cobactan Inj. 2.5%	24 hrs	~	Cephalosporin	IM
Cobactan MC Suspension 75mg	84 Hrs	Mastitis	Cephquinome	Intramammary
Naxcel Inj 200mg/mL	0 Days	acute interdigital necrobacillosis (foot rot); metritis	Ceftiofur	SC (at base of ear in non-edible tissue)
Amoxypen Inj. 150mg/mL	24 Hrs	~	Amoxicillin	IM/SC
Tylan Inj. 200mg/ml	108 Hrs (the 9th milking after last tx for twice daily milkers)	Respiratory and Genito-Urinary Infections	Tylosin	IM
Alamycin Inj. 200mg/ml	10 Days	~	Oxytetracycline	IM
Engemycin Inj. 10% (Dual Dosage)	24 Hr Dose: 6 Days Prolonged Action Dose: 6 Days	~	Oxytetracycline	IV/IM/SC
Engemycin Spray 3.8% w/w	0 hours	Foot infections	Oxytetracycline	Cutaneous/ External
Finadyne 50mg/mL	24 Hrs	Acute inflammation from resp disease	Flunixin Meglumine	IV
Cepravin 250mg Suspension	N/A (Withhold milk for 96 hours after calving)	Dry Cow Tx (For use in drying off cows at least 54 days before calving)	cefalonium (penicillin/ cephalosporin?)	Intramammary

Table 4 makes note of all of the antibiotics that were used in treating the various conditions listed in the previous tables, as well as providing standard withdrawal times, method of administration, and class of antibiotic.

Mastitis at Langley Hill

Mastitis obviously had the highest pathogenicity from May 2012 to May 2013 at Langley Hill Farm, with September 2012 being its peak month at a total of 5 cases treated *(Figure 1)*. Over the course of a year, there were a total of 38 individual cases of mastitis that were treated at Langley Hill out of a total of 150 cows, with only 4 cows that were treated more than once. That is 25.33% of Langley Hill's lactating population, at an average of approximately 3 cases per month (μ=2.923, σ=1.038), (*Table 5*). No cases of mastitis were treated at the Land of Milk and Honey.

Table 5

Month	# Cases of Mastitis Treated
May-12	3
Jun-12	1
Jul-12	4
Aug-12	2
Sep-12	5
Oct-12	2
Nov-12	3
Dec-12	2
Jan-13	3
Feb-13	3
Mar-13	3
Apr-13	3
May-13	4
Average Cases	**2.923076923**
STDEV	**1.037749043**
Total Cases	**38**

Table 5. A breakdown of how many mastitis cases were treated per month through May 2012 to May 2013, as well as average number of cases per month and the standard deviation for the data.

Figure 1

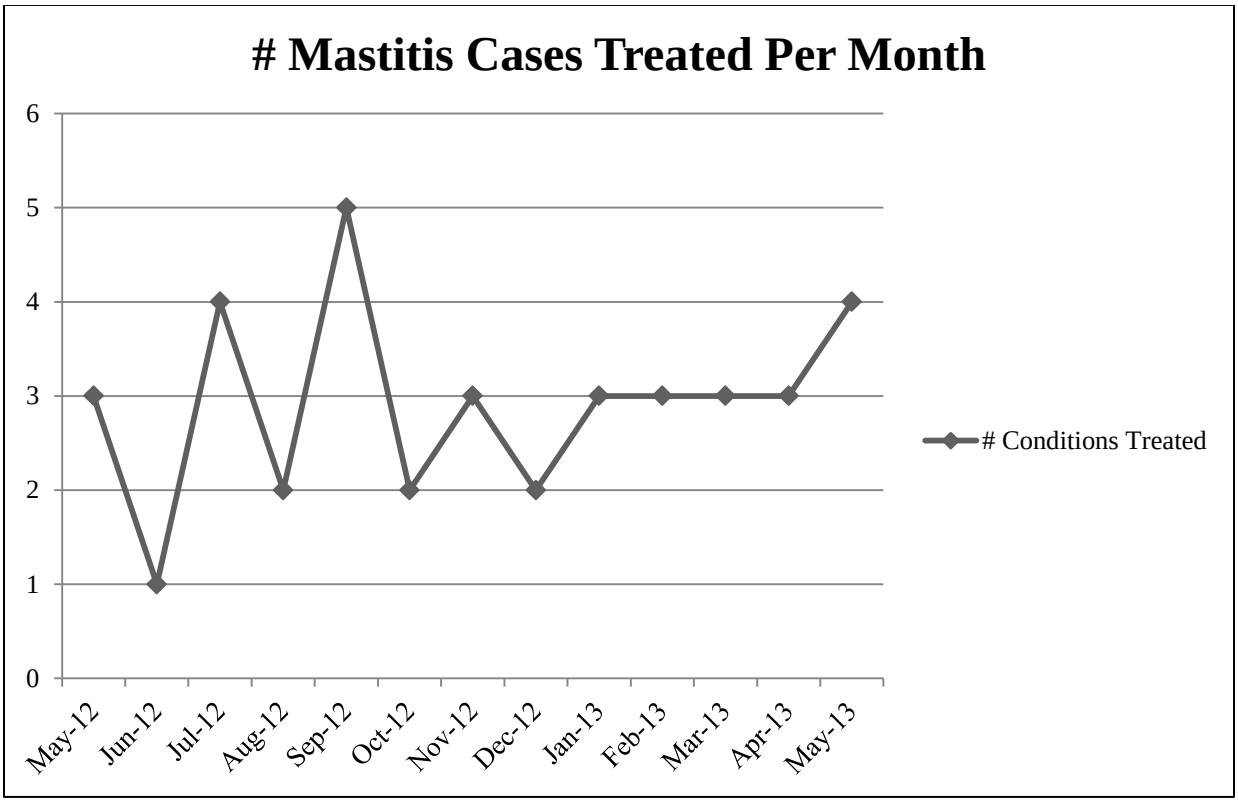

Fig. 1 This illustrates the number of mastitis cases diagnosed and treated per month from May 2012 through May 2013, with the peak being in September of 2012 and lowest number of cases in June 2012.

Lameness at Langley Hill

Lameness was the second most-treated condition at Langley Hill in this time-frame, with a total of 11 separate cases and 2 cows that had to be treated twice in quick succession for the same case. That is 7.33% of Langley Hill's population being affected by lameness in some form and receiving treatment for it at an average of only 1 case per month ($\mu=1$, $\sigma=1.35$), (*Table 6, Fig. 2*). No lameness was treated at the Land of Milk and Honey.

Table 6

# of Lameness Cases	
Month	**# Conditions Treated**
May-12	0
Jun-12	0
Jul-12	5
Aug-12	1
Sep-12	2
Oct-12	0
Nov-12	0
Dec-12	1
Jan-13	1
Feb-13	1
Mar-13	0
Apr-13	1
May-13	1
Average Cases	**1.000**
STDEV	**1.354006401**
Total Cases	**13**

Table 6. Lameness was second most commonly treated condition at Langley Hill. Included is the total cases treated per month, average cases per month, and standard deviation.

Figure 2

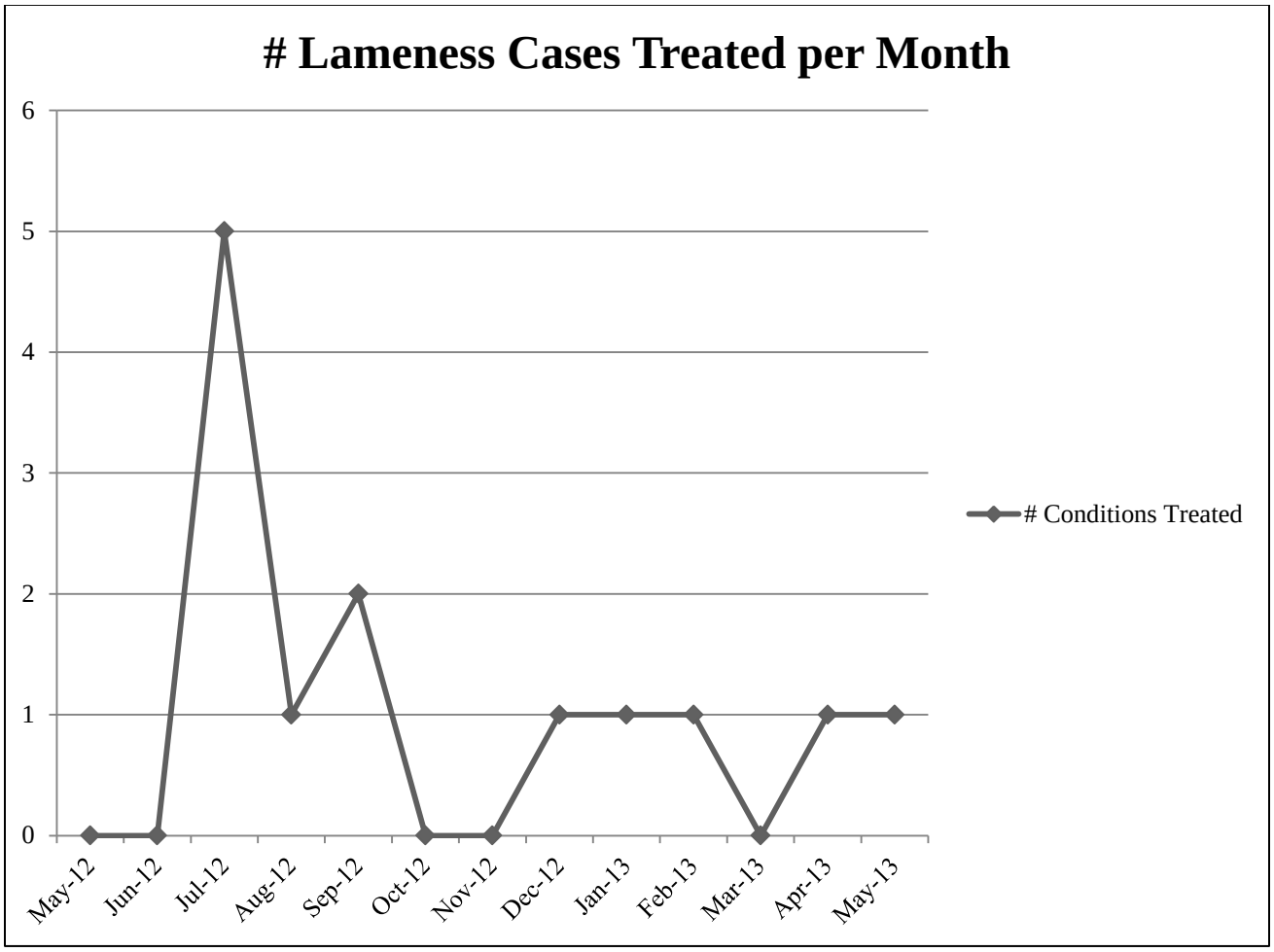

Fig. 2. A visualization of the number of lameness cases treated at Langley Hill per month from May 2012 to May 2013. There were several months without any cases, but there were 5 in the month of July 2012.

Additional Cases and Miscellany at Langley Hill

Other conditions that were treated at Langley Hill included fevers and low temperatures, lost calves, abscesses, and general non-specific illnesses. There were 13 cows treated for various ailments, 8.00% of the population, with only one being treated more than once for the same symptoms. This gave an average of approximately 1 cow treated case per month (μ=1.00, σ=1.22), (*Table 7, Fig. 3*). There was only one reported instance of treatment given at the Land of Milk and Honey for the year of 2012, aside from a euthanasia which is not included in this part of the evaluation. This singular treatment was for a cow that had eaten a rope and required a rumenotomy to remove it and was given a non-specified amount of Baytril as a post-operative antibiotic.

Table 7

General cases (excluding lameness)	
Month	**# Conditions Treated**
May-12	1
Jun-12	1
Jul-12	4
Aug-12	2
Sep-12	2
Oct-12	0
Nov-12	1
Dec-12	2
Jan-13	0
Feb-13	0
Mar-13	0
Apr-13	0
May-13	0
Average Cases	**1.0000**
STDEV	**1.224744871**
Total Cases	**14**

Table 7. Any other cases aside from mastitis and lameness that were treated at Langley Hill. Including average cases per month and standard deviation.

Figure 3

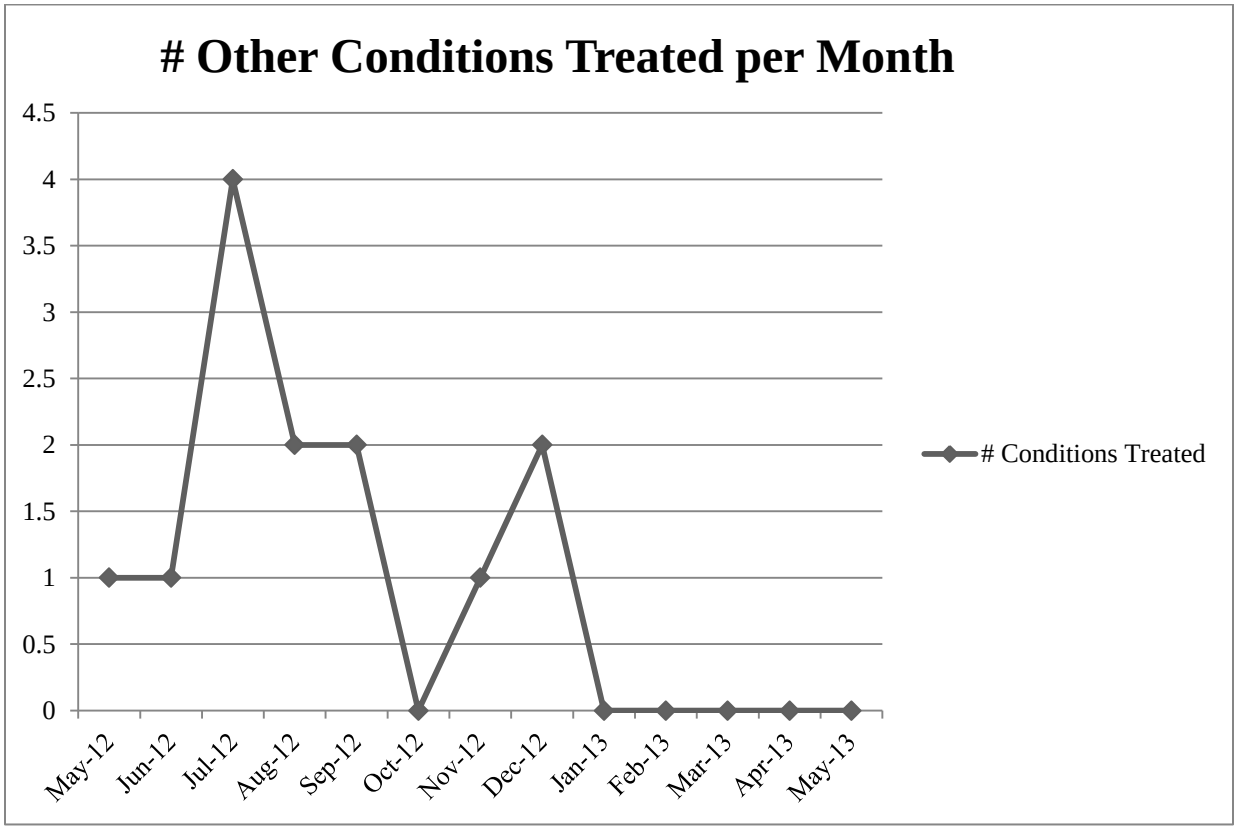

Fig. 3. A representation of all other treated cases at Langley Hill, excluding only mastitis and lameness. Once again, there is a peak in treatments in July 2012, but several months that had no cases at all.

Discussion:

Although the Land of Milk and Honey Farm did not have many cases overall that actually received any kind of treatment, a slight comparison can be made between how many cows were pulled from production at LOMAH for high somatic cell count and how many cases of clinical mastitis cases were actually treated at Langley Hill. This is because a high somatic cell count can be a precursor or an indicator of a possible mastitis infection. There was approximately the same percentage of cows with high SCC at LOMAH as cows that were treated for mastitis at Langley Hill (25% and 25.33%, respectively).

The data that was collected was obviously slightly one-sided. This can be attributed partially to the fact that the Land of Milk and Honey farm is considerably smaller than Langley Hill farm, and therefore had a much lower disease rate, as well as to a lack of precision record keeping at the Land of Milk and Honey farm. However, the data and personal communication that was obtained is still valuable in assessing the differences in governmental regulations and the feelings that organic producers have about those regulations.

Land of Milk and Honey

Aside from one cow that was euthanized due to the onset of lymphosarcoma and one that ate a rope and had to have it removed, the only other reason for any cows to be pulled off of the production line at the Land of Milk and Honey farm in 2012 was due to high somatic cell count in the milk. Out of 60 that are typically lactating at one time, 15 cows were pulled from production because of high SCC, 25% of the lactating population and 17% of the total population of 90 cows for that year.

Lymphosarcoma

There are several forms of lymphosarcoma, all depending on what age the cow has onset of symptoms and what the cause of the disease is. Clinically, this disease manifests as dyspnea, bloat, tachycardia, and fever as well as possible swelling of the lymph nodes. Depending on what type of lymphosarcoma it is, it may present itself as cutaneous plaques or a tumor that can occur in various sizes and locations [15].

High Somatic Cell Count

High somatic cell count is typically an immune response of leukocytes, white blood cells, and some epithelial, or skin, cells seen in a cow's milk and is an indicator of milk quality. Cows with very high SCC may be fighting off various pathogens that may cause mastitis. A somatic cell count of 100,000 cells per mL or lower indicates an uninfected cow, 200,000 cells per mL is cause to withdraw the cow from production for treatment, while anything over 400,000 cells per mL is unfit for human consumption [17].

Mastitis at Langley Hill

Mastitis is characterized by the inflammation of mammary gland and udder tissues. This is most commonly a response to some kind of bacterial infection of the teat canal, often by streptococcus bacteria [8]. When milking a cow by hand to determine if she has mastitis, the discharge that comes out of the affected teat is often a clumpy off-white color and typically mixed with some blood, making it look pink. When this is found, the cow is treated with an

intramammary insertion of antibiotics, Cobactan at Langley Hill, directly into the affected teat canal. The milk from this cow must then be removed from production for twice the recommended withdrawal period for organic dairy cattle, which would be a total of 84 hours, or 3.5 days, after the final treatment and including the days that the cow is on treatment as well. Since cows at Langley Hill farm are milked twice daily, they are treated a total of six times over three days, making their total withdrawal from production time a minimum of 6.5 days. These cows are still milked, but the milk is collected in a separate "dump bucket" and given to the bottle calves until they are weaned.

To prevent mastitis, Langley Hill uses both a pre- and post-milking teat dip. The first dip is used to rinse the teat of debris that may have been gathered during the day that could transmit any possible infections from one cow to the next via the teat-cup. The second dip is for after removal of the teat from the teat-cup and is used to help prevent chapping of the teat and acts as another preventative of transmitted infection.

Lameness at Langley Hill

Lameness can be caused by a wide variety of things. Cows who walk on rough and rocky terrain on a regular basis can suffer from stone bruises on their feet, or some cows may get a snake bite or some other kind of injury on their leg or foot that makes it painful to walk. Cows in wet and dirty conditions may suffer from digital dermatitis, which will cause necrosis. At Langley Hill, where lameness was occasionally seen over the course of the year-long data-spread, this lameness was typically caused by some kind of infection that caused digital dermatitis and necrosis. The source of this infection is from cows that often walk through their own "slurry," or

manure, or are in wet conditions and is highly contagious, so must be treated as soon as possible [2].

Treatment of this infection involves trimming the cow's hoof in order to locate the source of the infection which typically occurs on the bulbs of the foot that are located just above the back of the hoof (*Fig. 4*), but can also be seen interdigitally and along the coronary band where the foot meets the hoof. Once the hoof has been trimmed away some, there is typically a line or hole where pus can be seen. This is where the infection is located and so the hoof around this must be trimmed away until it has reached a solid hoof again without any gaps between the hoof and the skin of the foot underneath. This can occasionally take quite a bit of work and will sometime take off a much of one side or the other of the hoof, but once the pressure building up from the pus inside the wound is relieved, the limb is often able to bear weight more comfortably again. In order to keep some weight off of the affected digit, a special "shoe" is placed on the healthy digit that raises the foot an extra few centimeters off of the ground, allowing the affected digit ample space for healing.

Figure 4

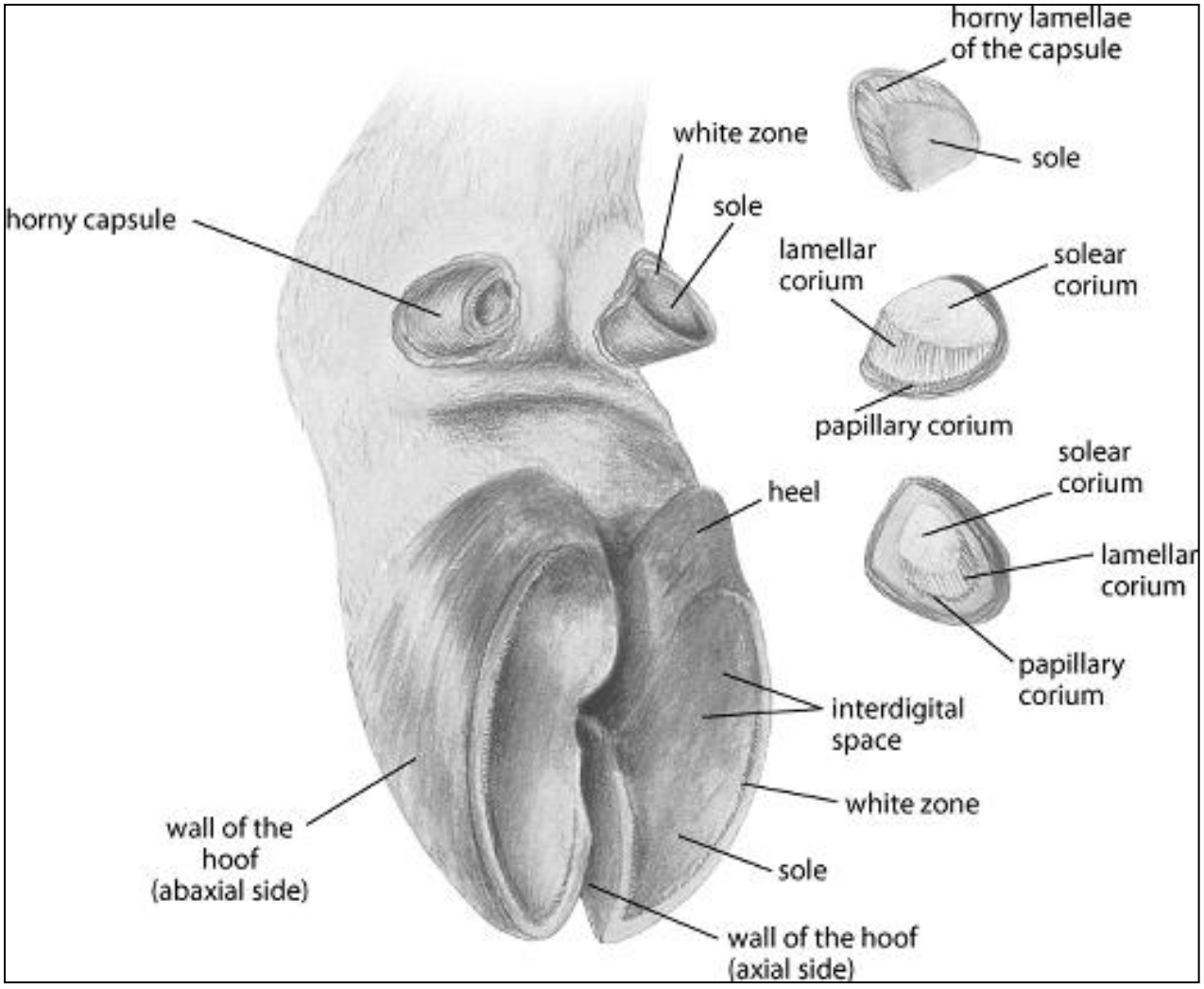

Fig. 4. A diagram of a bovine hoof. Digital dermatitis tends to affect the skin just under the horny capsule or between the digits close to the foot. Photo courtesy Merck Veterinary Manual.

Conclusion:

Despite the lack of data for the Land of Milk and Honey Farm, a reasonable comparison can be made between the number of cows pulled for high somatic cell count at LOMAH and the number of cows treated for mastitis at Langley Hill Farm. It was believed that the UK farm would have a lower instance of disease and treatments, however, this collection of data suggests otherwise.

There are two reasons as to why this data may be inappropriately skewed to make it appear that there is more disease at the UK farm. One reason being that there is a much smaller population at the LOMAH farm in the US, meaning a smaller sample size, and therefore a less accurate representation of disease rates on US dairies than what could be true. Secondly, a lack of precision record-keeping at the LOMAH farm would also contribute to a lack of data, but it is uncertain if this is an actual problem or not.

There is also the possibility that because LOMAH farm uses more of a modified organic approach to their production, that the decreased disease instances are accurate. More study into this would be appropriate, including more in depth evaluation of the modified organic dairy. It would also be appropriate to do a larger-scale comparison which would include more farms from either country and potentially compare those disease rates to conventional dairies in either or both countries. More time and more manpower would be helpful in continuing this study, however, accurate and detailed records would be vital to the continuation of these evaluations.

Organic farming sounds like a good idea, but some dairy producers in the United States feel like it is practiced without the well-being of the animals involved taken into account. Dr. Donna Johnson, owner of LOMAH farm, expressed that most of the practices as well as organic

certification are done all on the "honor system," so to speak. The agents in charge of certifying a dairy as organic never return to the farm for any kind of follow-up to ensure that the producers are conforming to the USDA and NOP standards, nor do any Federal Officials ever check-in on the production. Since there are no second checks and this is not a morally perfect world, it can be assumed that there are some producers that would in some way not fully comply to the USDA NOP standards for organically produced milk and dairy products by not treating an animal with proper medications when necessary, treating the animal but failing to observe the proper withdrawal time of twice the recommended time, or treating the animal with something that is not allowed per national organic standards and allowing that animal to remain in organic production. This leads to a very uninformed public when it comes to organic farming.

Many people that begin consuming organically produced products are concerned with animal well-being and what kinds of residues they may be consuming when they eat conventionally produced products. In the United Kingdom and European Union, many farms are considered organic merely because the general population passionately disagrees with the use of genetically modified organisms and growth hormones in agriculture. It can be argued that food in the United Kingdom tastes much better due to a lack of over-processing. Things seem more fresh and colorful and many people grow their own produce still.

References:

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