

# **BSK** FOOD & DAIRY LABORATORIES

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## RESULTS OF ANALYSIS

### ORGANIC PASTURES DAIRY CO.

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### PATHOGEN RECAPTURE IN RAW COLOSTRUM AND RAW MILK

#### PROCEDURE:

1. Solutions of Salmonella, *E. coli* O157:H7 and *Listeria monocytogenes* were made having approximately the same turbidity as McFarland 1.0. The solutions contained  $6.7 \times 10^7$  Salmonella,  $2.5 \times 10^8$  *E. coli* O157:H7 and  $2.2 \times 10^8$  *Listeria monocytogenes*, respectively.
2. Three mls from each of three pathogen solutions were mixed together to make 9 mls of the inoculum for the first study. One ml of the inoculum solution was inoculated into raw colostrum and into raw milk.
3. Dilutions of the inoculated samples were plated on MOX Agar to determine the number of *Listeria*, EMB Agar to determine the number of *E. coli* O157:H7 and XLD Agar to determine the number of Salmonella.
4. The raw colostrum and raw milk samples were stored at 40° between testing.
5. The raw colostrum and raw milk samples were tested through out the self life of the products.
6. Colonies that are typical for Salmonella were counted on the XLD Agar, colonies that are typical for *Listeria* were counted on the MOX Agar and colonies typical for *E. coli* were counted on the EMB Agar.

#### CONCLUSION:

→ Raw colostrum and raw milk do not appear to support the growth of Salmonella, *E. coli* O157:H7 or *Listeria monocytogenes*. Salmonella was not recovered in the samples in Table 1, possibly due to the high numbers of *E. coli* present. There was some reduction of the numbers of Salmonella in raw colostrum and raw milk samples.

RESULTS:

Table 1	RAW COLOSTRUM	RAW MILK
DAY 0		
Salmonella	<1000	<1000
Salmonella	<1000	<1000
Listeria monocytogenes	1,100,000	1,300,000
Listeria monocytogenes	870,000	1,400,000
E. coli O157:H7	1,800,000	2,100,000
E. coli O157:H7	1,900,000	1,800,000
Day 4		
Salmonella	<1000	<1000
Salmonella	<1000	<1000
Listeria monocytogenes	1,700,000	1,500,000
Listeria monocytogenes	1,500,000	1,700,000
E. coli O157:H7	430,000	520,000
E. coli O157:H7	540,000	470,000
Day 7		
Salmonella	<1000	<1000
Salmonella	<1000	<1000
Listeria monocytogenes	750,000	1,800,000
Listeria monocytogenes	740,000	1,600,000
E. coli O157:H7	1,700,000	1,500,000
E. coli O157:H7	1,600,000	1,700,000

Table 2	RAW COLOSTRUM	RAW MILK
Day 0		
Salmonella	3,700,000	5,400,000
Day 3		
Salmonella	5,000,000	4,600,000
Day 7		
Salmonella	1,100,000	1,800,000
Day 10		
Salmonella	1,400,000	2,400,000
Day 14		
Salmonella	470,000	980,000



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Mark McCafee,  
Organic Pastures

I want to thank you for your participation in our research project, which involves 30 calf ranches and dairies all over California. The aim of the project is to investigate factors that lead to antibiotic resistance in fecal bacteria in calves.

You were wondering about the antibiotic resistance profiles of your cows. I am sorry that you have not received the final report of the study yet. You will get it as soon as you send me the birth dates of the calves in our trial.

I am sending you this diagram of the antibiotic resistance profiles of the cows. As you can see you have low levels of resistance in your cows. The somewhat high level of resistance against cephalothin is probably not a significant finding. This is more to where the NCCLS guidelines defines resistance/sensitivity for human *E. coli* (there are not cut-points for animal *E. coli*.)

I am looking forward to sampling some more at your dairy this spring, and will then be able to provide you further data.

We cultured all samples from the calves from Salmonella and they were all negative.

A handwritten signature in cursive script that reads "Catharina Berge".

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