Increasing profit of dairy farm through improvement of raw milk quality: According to SCC and mastitis

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Abstract

The study for a effect of monitoring on bovine mastitis was conducted for improvement of raw milk from Jan. to Dec. in 1996. Sampling the milk of 367 cows (1,406 quarters) from 5 herds in Inchon and were carried out California mastitis test (CMT), somatic cell count (SCC), isolation of pathogens and antibiotic sensitivity tests. The results were summarized as follows,

1. The number of bovine mastitis was 177 cows (48.2%) and 371 quarters (26.4%): clinical mastitis: 25 cows (6.8%), 32 quarters (2.3%) and subclinical mastitis: 152 cows (41.4%), 339 quarters (24.1%). Incidence rate of mastitis by season were Summer 52.0%, Fall and Winter 48% and Spring 41%. Incidence rate of mastitis by quarters were Summer 30%, Fall 28%, Winter 25% and Spring 21%, respectively.

2. In the distribution of CMT degree by quarter, CMT positive (CMT+) of 1,406 quarters milk were 50.1% (704 quarters). The ratio of CMT positivity by quarter were left front quarter 55.8%, right front quarter 48.9%, right hind quarter 48.6% and left hind quarter 47%. The ratio of CMT positivity by season were Summer 54.1%, Fall 49.7%, Spring 48.5% and Winter 48%.

3. The highest mean SCC by season among 5 herds was "A" herd. Mean SCC (cell/ml) of A herd were Summer 2,032,000 cells/ml, Fall 1,109,000 cells/ml, Winter 782,000 cells/ml and Spring 577,000 cells/ml. The lowest mean SCC by season among 5 herds was "E" herds. Mean SCC of E herd were Summer 1,064,000 cells/ml, Spring 795,000 cells/ml, Fall 429,000 cells/ml and
Winter 400,000 cells/ml. Mean SCC of the other herds by season were little difference.

4. The milk samples of "A" herd were collected from 10 cows. In 3 seasons, mean SCC of No. 2 and 3 cows were than 1,000,000 cells/ml. In 1 season, mean SCC of No. 6, 7 and 8 cows were than 1,000,000 cells/ml. The more than mean SCC 1,000,000 cells/ml of cows by season were distributed Summer 4 cows, Winter 3 cows, Spring and Fall 1 cow respectively. The milk samples of "B" herd were collected from 14 cows. In 3 seasons, mean SCC of No. 1 cow was more than 1,000,000 cells/ml. In 2 seasons, mean SCC of No. 5, 9 and 14 cows were more than 1,000,000 cells/ml. In 1 season, No. 3, 6 and 7 cows were more than 1,000,000 cells/ml. The more than mean SCC 1,000,000 cells/ml of cows by season were distributed Fall and Winter 4 cows respectively, Summer 3 cows and Spring 1 cow.

The milk samples of "C" herd were collected from 18 cows. In 2 seasons, mean SCC of No. 16 cow was more than 1,000,000 cells/ml. In 1 season, mean SCC of No. 1, 2, 6, 7, 13, 15 and 18 cows were more than 1,000,000 cells/ml respectively. The more than mean SCC 1,000,000 cells/ml of cows by season were distributed Summer 5 cows, Fall 3 cows, Spring 2 cows and Winter 1 cow.

The milk samples of "D" herd were collected from 24 cows. In 3 season, mean SCC of No. 14 cow was more than 1,000,000 cells/ml. In 2 seasons, mean SCC of No. 14 and 18 cows were more than 1,000,000 cells/ml. In 1 season, mean SCC of No. 1, 2, 3, 8, 12, 17, 19, 20 and 21 cows were more than 1,000,000 cells/ml. The more than mean SCC 1,000,000 cells/ml of cows were distributed Fall 15 cows, Spring and Winter 4 cows respectively and Summer 3 cows.

The milk samples of "E" herd were collected from 27 cows. In 2 seasons, mean SCC of No. 6, 7 and 21 cows were more than 1,000,000 cells/ml. In 1 season, mean SCC of No. 2, 4, 7, 11, 14, 16 and 23 cows were more than 1,000,000 cells/ml. The more than mean SCC 1,000,000 cells/ml of cows were distributed Spring and Fall 5 cows respectively, Summer and Winter 2 cows, respectively.

5. The rate of isolated pathogenic microorganisms from bovine mastitis were summarized as follows: *Staphylococcus* sp 168 strains (45.8%), *Streptococcus* sp 82 strains (22.3%), Gram(-) sp 45 strains (12.3%), Gram (+) sp 51 strains and the other sp 21 strains (5.7%).

6. The highest of antibiotic sensitivity test of each microorganism was summarized as follows: *Staphylococcus* sp - cephalosporin 76%, gentamicin 55%, *Streptococcus* sp - ampicillin 61%, cephalosporin 63%, Gram(-) sp - gentamicin 58%, Gram(+) sp - cephalosporin 63%. The other sp - cephalosporin 90%. Microorganisms showed the highest sensitivity (68%) to cephalosporin.

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Key words: California Mastitis Test (CMT), Somatic cell count (SCC), Mastitis pathogenic organisms, Antibiotic sensitivity.

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