

Occurrence of Bacteria In Bovine Mastitis

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The following is a summary of the results obtained from the examination of milk samples submitted by practicing veterinarians for mastitis diagnosis during the period Nov. 1, 1946 to Nov. 1, 1947.

The diagnoses were made largely on the basis of a cultural examination. In a few cases the history and the appearance of the secretion aided in the diagnosis where either *E. coli* or *Aero. aerogenes* was reported. The cultural methods consisted of plating the samples on ox blood agar, or in cases of contaminated samples, they were plated on both sodium azide-crystal violet blood agar and blood agar containing 7.5 percent sodium chloride.

Isolation and identification of the various organisms were carried out as described in a previous report.¹

Veterinarians submitting samples	57	
Total samples examined	1773	
Number of samples containing mastitis organisms	812	(46.3%)
Number of samples negative	961	(53.7%)
Species of bacteria in positive samples:		
<i>Staph. aureus</i>	630	(74.4%)
Streptococci	152	(17.9%)
<i>Strep. agalactiae</i>	66	
<i>Strep. dysgalactiae</i>	40	
<i>Strep. uberis</i>	41	
<i>Strep. zooepidemicus</i>	5	
Other organisms	65	(7.7%)
<i>Coryn. pyogenes</i>	24	
<i>E. coli</i>	14	
<i>Aero. aerogenes</i>	12	
<i>Past. multocida</i>	13	
<i>Pseudo. aeruginosa</i>	1	
<i>Proteus ammoniae</i>	1	

The tabulation of organisms above shows that *Staphylococcus aureus* is the most prevalent cause of bovine mastitis which these Iowa veterinarians are called to treat. In a number of herds which were reported to have considerable trouble with mastitis, no streptococci could be isolated from any quarter in the herd; they were all *Staph. aureus* cases. The fact that only 17.9 percent of the positive samples yielded mastitis streptococci may be surprising in view of past reports in the literature, which usually report that a high percentage of cases are caused by streptococci. However, the results of a previous year's report of a similar survey of 2,296 samples is almost identical to those listed above. The percentage of *Staph. aureus* isolations were 76 percent and 74.4 percent respectively for the 1946 and 1947 periods. The occurrence of streptococci was 18.3 percent and 17.9 percent in those years.

Two other recent reports of surveys of the organisms causing bovine mastitis are similar to the finding reported here. McCulloch² examined 3,000 cows in the State of Washington and found 64 percent of the infections due to *Staph. aureus* and 28 percent caused by streptococci. Bowen³ examined 154 cows and in 12 dairy herds in the Ames milk-shed and found *Staph. aureus* in 68 percent of the infected cows and 56.1 percent of the infected quarters. Streptococci were of secondary importance in these studies.

The occurrence of such a high percentage of *Staph. aureus* may be significant in regard to treatment with the modern chemotherapeutic agents. It has been shown that streptococci are quite susceptible to the action of penicillin, tyrothricin and sulfonamides, and that *Staph. aureus* and other mastitis organisms are more resistant. If approximately 80 percent of the cases of mastitis seen by Iowa veterinarians are caused by organisms other than streptococci, this may explain some of the failures of chemotherapeutic agents in combating this disease.

Thirteen isolations of *Pasteurella multocida* from

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mastitis is of interest since only a few cases due to this organism have thus far been reported.

Although this report does not accurately represent the incidence of infection in all Iowa dairy cattle, it is believed that it represents the problem which the Iowa veterinarians are facing in regard to diagnosis and control of this disease.

REFERENCES

1. Packer, R. Allen: Incidence of mastitis organisms in Iowa. N. Amer. Vet. 28 (1947)591-592.

2. McCulloch, E. C.: The incidence of staphylococcal mastitis in the northwest. Jour. Bact. 52 (1946):153.
3. Bowen, L. E.: The incidence of mastitis in twelve Iowa farm herds. Unpublished M. S. thesis. Ames, Iowa, Iowa State College Library. 1947.

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