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IMPACT OF SEASON AND HEAT STRESS ON SOMATIC CELL COUNTS

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ABSTRACT OF THESIS

IMPACT OF SEASON AND HEAT STRESS ON SOMATIC CELL COUNTS

Infection data were obtained monthly from June, 1999 to September, 2000 at the University of Kentucky dairy. Quarter foremilk samples were collected for bacteriological determination and somatic cell counts (SCC). The Livestock Stress Index (LSI) estimated heat stress and is calculated by combination of temperature and humidity. For uninfected quarters the geometric mean SCC was 29,000 cells/ml. For infected quarters the geometric mean SCC was 213,000 cells/ml. Coagulase-negative staphylococci (CNS) infections comprised 61 percent of the total infected quarters with a geometric mean SCC of 155,000 cells/ml. *Staphylococcus aureus* infected quarters had a geometric mean SCC of 680,000 cells/ml. There were no significant correlations between log SCC and LSI when looking at the total sample period. However, evaluating October, 1999 through September, 2000, significant correlations were found for LSI and log SCC of uninfected quarters ($P < 0.05$) and infected quarters ($P < 0.0001$). All correlation coefficients were less than 0.12. The results suggest no marked changes in SCC were observed in uninfected quarters during hot summer weather. Hot summer weather may have a minor impact on SCC in infected quarters, but the effect is variable. Thus, infection status of the mammary gland, not heat stress, is the major factor determining SCC.

Keywords: Livestock Stress Index, Mastitis, Somatic Cell Count, Bovine

IMPACT OF SEASON AND HEAT STRESS ON SOMATIC CELL COUNTS

By

Brent Allen Broaddus

Director of Thesis

Director of Graduate Studies

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THESIS

Brent Allen Broaddus

**The Graduate School
University of Kentucky
2001**

IMPACT OF SEASON AND HEAT STRESS ON SOMATIC CELL COUNTS

THESIS

A thesis submitted in partial fulfillment
of the requirements for the degree of
Master of Science
at the University of Kentucky

By

Brent Allen Broaddus

Lexington, Kentucky

Director: Dr. Robert J. Harmon, Professor of Animal Science

Lexington, Kentucky

2001

DEDICATION

I would like to dedicate this thesis to three individuals that have had a profound impact on my life and on my success thus far and for my success yet to come. Through their examples and faith they have shown to all that have known them that angels walk among us.

Benjamin H. McGuire

Hila E. Whiting

Richard L. Whiting

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TABLE OF CONTENTS

Acknowledgments	iii
List of Tables	vi
List of Figures	vii
List of Files	ix
Chapter I: Introduction	1
Chapter II: Literature Review	2
What Are Somatic Cells?	2
What Is Normal Somatic Cell Count?	2
Pathogens That Cause Changes In Somatic Cell Count.....	3
Role Of Inflammation On Somatic Cell Count And The Mammary Gland.....	3
Age's Effect On Somatic Cell Count.....	5
Stage Of Lactation Effects On Somatic Cell Count.....	5
Stress Effect On Somatic Cell Count.....	8
Effect Of Season on Somatic Cell Count	8
Diurnal Variation Of Somatic Cell Count	9
DHIA And Somatic Cell Count	9
Relationship Of Production Loss To Somatic Cell Count.....	10
Use Of Somatic Cell Counts And DHIA In Dairy Herd Management.....	11
Chapter III: Impact Of Season And Heat Stress On Somatic Cell Counts	12
Introduction	12
Materials and Methods	13
Milk Sample Collection.....	13
Bacteriological Determination.....	13
Somatic Cell Count	13
Livestock Stress Index And Rainfall.....	13
Statistical analyses	14
Results And Discussion	15
Conclusions	47
Chapter IV: Dynamics of <i>Staphylococcus aureus</i> Infections	48
Introduction	48
Results And Discussion	49
Conclusions	56

Chapter V: General Conclusions	57
References	58
Vita	64

LIST OF TABLES

Table 1. Estimated differences in lactation milk production associated with an increase in SCC score.....	10
Table 2. Estimated infection prevalence and losses in milk production associated with elevated BTSCC.....	11
Table 3. Proc Mixed ANOVA Table showing tests of significance for main effects and interactions on log ₁₀ SCC for uninfected quarters.....	32
Table 4. Proc Mixed ANOVA Table showing tests of significance for main effects and interactions on log ₁₀ SCC for infected quarters.....	35
Table 5. Proc Mixed ANOVA Table showing tests of significance for main effects and interactions on log ₁₀ SCC from <i>Staphylococcus aureus</i> -infected Quarters.....	40
Table 6. Proc Mixed ANOVA Table showing tests of significance for main effect and interactions on log ₁₀ SCC from coagulase-negative staphylococci infections.....	43
Table 7. Pearson correlation coefficients for SCC and LSI by infection status at the time periods of 16 months (06/99-09-00), first 12 months (06/99-05/00), last 12 months (10/99-09/00) of the trial.....	45
Table 8. Number and percentage of <i>S. aureus</i> (SA) infected quarters (INF) coming from first calf heifers over the 16-month sample period.....	52

LIST OF FIGURES

Figure 1. Mastitis results after bacteria pass through the teat duct.....	4
Figure 2. Polymorphonuclear neutrophils passing through the blood vessel.....	6
Figure 3A. Bacterial toxin damage to milk-producing tissue during Mastitis.....	7
Figure 3B. LSI and rainfall over the 16-month sample period.....	16
Figure 4. Geometric mean SCC by infection categories.....	17
Figure 5. Geometric mean SCC of infected and uninfected quarters compared with LSI for 16-month sample period.....	18
Figure 6. Geometric mean SCC of infected, uninfected, and CNS-infected quarters compared with LSI over the 16-month sample period.....	19
Figure 7. Geometric mean SCC of major and minor pathogen infections across a 16-month sample period.....	21
Figure 8. Geometric mean SCC of infected, uninfected, and infected quarters without CNS infections compared with LSI for a 16-month sample period.....	22
Figure 9. Geometric mean SCC of <i>Staphylococcus aureus</i> and CNS-infected quarters over the 16-month sample period.....	23
Figure 10. Geometric mean SCC of streptococcus spp. and gram-negative infected quarters over a 16-month sample period.....	24
Figure 11. Geometric mean SCC of clinical quarter samples and LSI throughout a 16-month sample period.....	26
Figure 12. Percentage quarters infected with <i>Staphylococcus aureus</i> , CNS, and <i>Streptococcus</i> spp. over a 16-month sample period.....	27
Figure 13. Percentage quarters infected with gram-negative bacteria, coryneforms, and other infected quarters over a 16-month sample period.....	28
Figure 14. Percentage quarters infected, uninfected, or infected with <i>Staphylococcus aureus</i> or CNS across stages of lactation.....	29

Figure 15. Geometric mean SCC of infected, uninfected, <i>Staphylococcus aureus</i> infected, and CNS-infected quarters across stages of lactation.....	31
Figure 16. Effect of LSI on log ₁₀ SCC across stage of lactation for uninfected quarters.....	33
Figure 17. Effect of LSI on log ₁₀ SCC across lactation number for uninfected quarters.....	34
Figure 18. Effect of lactation on log ₁₀ SCC across LSI categories for infected quarters.....	37
Figure 19. Effect of breed on log ₁₀ SCC across stage of lactation for infected quarters.....	38
Figure 20. Effect of quarter on log ₁₀ SCC across stage of lactation for infected quarters.....	39
Figure 21. Effect of LSI on log ₁₀ SCC across stage of lactation for <i>Staphylococcus aureus</i> -infected quarters.....	41
Figure 22. Effect of lactation on log ₁₀ SCC across stage of lactation <i>Staphylococcus aureus</i> Quarters.....	42
Figure 23. Effect of breed on log ₁₀ SCC across stage of lactation for coagulase-negative staphylococci infected quarters.....	44
Figure 24. Percent of quarters infected with <i>S. aureus</i> and CNS pathogens over a 16-month period.....	50
Figure 25. Percentage of new <i>S. aureus</i> infected quarters coming from heifers over 15 months of a 16-month sample period.....	51
Figure 26. Percentage of new CNS infected quarters coming from heifers over 15 months of a 16-month sample period.....	53
Figure 27. Number of heifers that entered the herd during the last 15 months of a 16-month period.....	54

LIST OF FILES

00CHAPTER.PDF	25.4 KB
01CHAPTER.PDF	6.18 KB
02CHAPTER.PDF	150.0 KB
03CHAPTER.PDF	167.0 KB
04CHAPTER.PDF	30.5 KB
05CHAPTER.PDF	23.9 KB