

# The Relationship Between Antibiotic Residues and Bulk Tank Somatic Cell Count in Wisconsin Dairy Herds

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The objective of this study was to determine the relationship between bulk-tank somatic cell count (SCC) levels and the occurrence of antibiotic residues in milk samples collected for regulatory purposes. The data included tests from all licensed dairy farms in Wisconsin. Data consisted of 945,595 grade-A milk samples and 199,976 grade-B milk samples collected from Wisconsin dairy farms from January 1995 through November 1998. The data set was reduced to include only the first official regulatory sample each month (retested samples were excluded). Data was included if both the bulk tank somatic cell count value and antibiotic test results were available for the same date, resulting in a final data set consisting of 935,578 grade-A milk samples and 190,910 grade-B milk samples. PROC GLM in SAS was used to

determine if SCC was equal for samples with a positive antibiotic residue test compared to samples with a negative antibiotic residue test. The arithmetic mean bulk-tank somatic cells for the unreduced data were 335,117 (standard deviation (SD) = 290,702) for grade-A milk and 492,844 (SD = 312,084) for grade-B milk. Median SCC values were 296,000 for grade-A milk and 430,000 for grade-B milk. Bulk-tank SCC values were significantly higher for samples with positive antibiotic residue tests for Grade A milk during all 4 years tested (Table 1). Bulk-tank SCC values were significantly higher for samples with positive antibiotic residue tests for Grade B milk for 3 of 4 years, and a numerical difference was seen in the fourth year (Table 1).

**Table 1.**

Year	Antibiotic Residue	Grade A Milk			Grade B Milk		
		No.	BTSCC LSMEAN	p-value	No.	BTSCC LSMEAN	p-value
1995	Yes	71	422,493		29	662,414	
	No	228,347	329,412	.0001	53,675	469,649	.0005
1996	Yes	87	458,897		36	636,944	
	No	210,679	338,796	.0001	48,050	492,782	.0070
1997	Yes	83	455,169		34	717,059	
	No	197,516	335,003	.0001	41,745	481,929	.0001
1998 <sup>a</sup>	Yes	52	468,500		15	558,000	
	No	168,937	335,870	.0001	33,179	475,351	.2883

<sup>a</sup>Jan-Nov only

Programs directed at reducing the level of subclinical mastitis (as measured by BTSCC) on dairy farms may have an additional benefit of reducing the risk of antibiotic residue violations.