

# Detection of tetracycline residues and other antibiotics in bovine milk following combination mastitis therapy

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## Abstract

The purpose of this study was to determine tetracycline and other antibiotic residues in milk from cows treated for clinical mastitis. Data regarding the animal health and used drugs were obtained by the farm veterinarians. A milk sample from an inflamed udder quarter of each cow was taken for bacterial identification before the treatment. Milk samples taken from treated udder quarters were analysed for antibiotic residues two milkings before and two after the prescribed withdrawal period. Additionally, milk samples were taken from the untreated healthy udder quarters, in order to check whether crossover of drugs occurs. All 35 cows included in the study were treated with an injector containing tetracycline, neomycin and bacitracin and also simultaneously with other drugs via intramammary or parenteral route. The withdrawal period of the “tetracycline injector” was 8 milkings but, in all cases longer withdrawal periods were prescribed due to off-label application of different combination of drugs. Three screening tests were used for antibiotic detection. The positive samples taken after the withdrawal period, together with the two samples before it, were analysed using quantitative methods. In 15 (42.9%) cows the milk samples from the treated infected quarters contained tetracycline residues above the maximum residue limit (MRL) after the prescribed withdrawal period and, in two cases (5.7%) neomycin and cefquinome. Cephalixin above the MRL was detected in only one case (2.9%). Beta-lactams did not exceed the MRL after the prescribed withdrawal period. Antimicrobial residues were not detected in milk samples from untreated udder quarters. Cow’s condition including: number of

lactation, decreased milk production and severity of mastitis significantly influenced the excretion of antibiotics in milk ( $P \leq 0.05$ ). On the other hand, there was no significant difference between the tetracycline positive and tetracycline negative cows regarding the bacterial infection, combination antibiotic therapy and treatment interval and duration. Additional studies are needed to estimate the excretion of antibiotic residues in milk following combination mastitis therapy.