MICHIGAN STATE
U N I V E R S I T Y

Dear Cooperator,

Thank you for participating in research on antibiotic treatments of mastitis conducted by Michigan State University and The Ohio State University in 2023. This study summarized antibiotic usage on 25 dairy farms in Michigan and Ohio using the MSU Antibiotic Usage Benchmark Tool. The ultimate goal of this research was to identify the overall antimicrobial usage for Clinical Mastitis on dairy farms while determining the timing of antibiotic use and the antibiotic classes used.

Your willingness to connect us to the dairy farmers you serve was vital to the success of the research. The generous gift of time, including your attendance at both research meetings, was crucial to ensuring robust data collection. We appreciate your confidence in the scientific process in allowing the research team to access your client's antibiotic use records.

We learned that discarded drug packaging closely matched the antibiotic usage recorded in dairy management software. This validates the usefulness of the Antibiotic Usage Benchmarking tool, using software records, to accurately display antibiotic usage at a farm level.

Included is a one-page research summary on the results of this experiment using data from 22 of the farms. If you have further questions, please contact the Antimicrobial Stewardship Lab or visit our website.

As always, we value the data privacy of the dairies we worked with. All information shared with us remains confidential and is anonymized when published. The data is stored securely and has only been accessed by the research team.

Again, thank you,

Dr. Pamela Ruegg

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MSU is an affirmative-action,
equal-opportunity employer.

Thank you for participating in our project "Evaluating animal health and economic consequences of a herd-level no-antibiotic treatment policy for clinical mastitis"!

Here is what we have learned so far:

❖ Twenty-two dairy farms analyzed, 13 in Michigan and 9 in Ohio
❖ The average heard size was 2,879 cows, ranging from 246 to 8389 cows.
❖ Average BTSCC was 161,090 cells/mL, ranging from 75,000 to 250,000 cells/mL
❖ Average milk production per cow per day was 37 kg (Holsteins) and 27 kg (other breeds)
❖ Overall antimicrobial usage was 4.6 Defined Daily Dose (DDD) per cow per year
  ○ DDD is the average number of days per year that each animal received antibiotic treatment
  ○ IMM antibiotics for clinical mastitis treatments = 0.81 DDD/cow/year
  ○ IMM at dry off = 2.63 DDD/cow/year
  ○ Injectable treatments = 1.15 DDD/cow/year
❖ No antibiotics were used to treat CM in 5 (22.7%) farms.

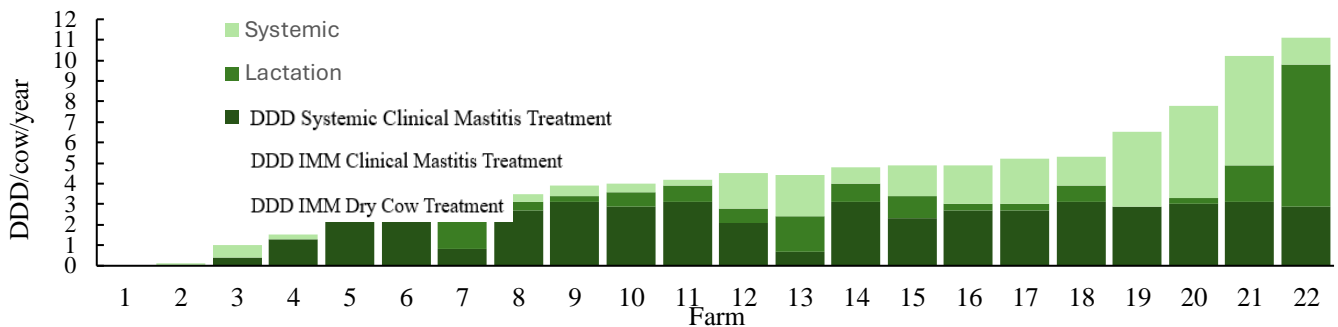Figure 1. Total antimicrobial usage in 22 dairy farms.

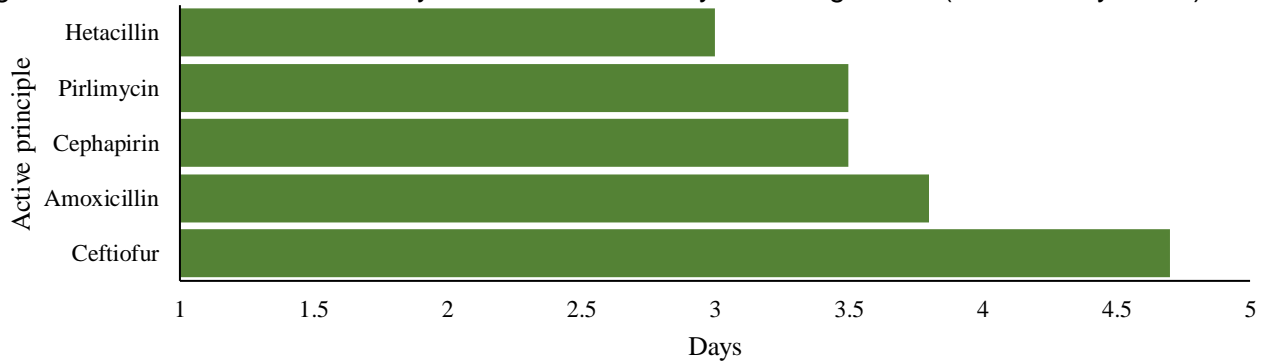Figure 2. Duration of intramammary treatments for CM by active ingredient (N = 16 dairy farms).

Figure 3. Proportion of active ingredients used among all treatments for all herds (n = 63,355 cows) in the previous 12 months for treatment of clinical mastitis, at dry off and systemic treatments.