## MICHIGAN STATE UNIVERSITY

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 participate in the project was vital to the success of the research. The generous gift of time, including staff attendance at both research meetings, facilitating our staff visits, and sharing your antibiotic data was crucial to ensuring robust data collection. We appreciate your confidence in the scientific process in allowing the research team to access your dairy's antibiotic use records.

We wish to specifically acknowledge the efforts of your herdsmen, who trained new staff on package collection, prevented the drug package bins from being discarded, and was the point of contact for the research team.

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 your data privacy. All information you have shared with us remains confidential and is anonymized when published. Your data is stored securely and has only been accessed by the research team.

Again, thank you,

Dr. Pamela Ruegg



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## 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 learned so far:

- Twenty-two dairy farms were 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 82 lbs (Holsteins) and 60 lbs (other breeds)
- ✤ Overall antimicrobial usage was 4.6 Defined Daily Dose (DDD) per cow per year
  - o DDD is the average number of days per year that each animal received antibiotic treatment
  - IMM antibiotics for clinical mastitis treatments was 0.81 DDD/cow/year
  - IMM at dry off was 2.63 DDD/cow/year
  - Injectable treatments were 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.



2. Duration of intramammary treatments for CM by antibiotic name (N = 16 dairy farms).



Figure 3. Proportion of drugs 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.

