

# ANTIBIOTIC USE AND STEWARDSHIP ON CALIFORNIA'S GOAT OPERATIONS

CDFA Antimicrobial Use and Stewardship (AUS) and Animal Health Branch (AHB) collaborated with the USDA National Agriculture Statistics Service (NASS) and USDA National Animal Health Monitoring System (NAHMS) to expand the NAHMS Goat 2019 Study in California (CA), a two-phase study in line with previous USDA research. CDFA provided funding to expand Phase I and provided personnel to help conduct Phase II.

**All the results in this fact sheet are for CA goat operations and, unless otherwise noted, all responses are for the 12 months prior to the study's administration.**

## Phase I

July 1, 2019 - August 15, 2019

### How this helps goat producers

The findings from this study are utilized in the development of best management practices and stewardship resources for goat producers in CA.

### 201 CA goat producers completed Phase I


Accounts for approximately **44,339** head of goats and kids, which is estimated as **34%** of the goats on operations with 5 or more head in CA.

General management **survey of goat producers** administered by NASS

**56.2%** of CA goat operations consulted a veterinarian for any reason related to goat health, productivity, or management. Details of these results include:


### Veterinary use:

  
**43.5%** of small operations (5 -19 head)

  
**66.7%** of medium operations (20 - 99 head)

  
**70.4%** of large operations (100 head or more)

by operation size

  
**60.5%** of meat goat operations

  
**55.0%** of dairy goat operations

  
**48.4%** of "other" goat operations (e.g., pet/companion, brush control, or packing)

by primary production of the operation

**71.5%** of all operations indicated they have a veterinarian-client-patient relationship (VCPR) in place

**58.4%** of small operations described having a VCPR



**Percentage of CA operations that kept health records:**

Health record types	%
Individual animal health and treatment (e.g., vaccination, deworming practices)	68.2
Laboratory test results	60.6
Names of antibiotics used	81.6
Dates of antibiotic treatments	83.2
Antibiotic withdrawal time	61.7

**62%** of all operations who used a veterinarian did so for regular or routine visits (e.g., pregnancy checks, herd health visits, health certificates)

Producers that reported **not** using antibiotics by operation size



**48.0%** of small operations (5 - 19 head)



**25.3%** of medium operations (20 - 99 head)



**29.5%** of large operations (100 head or more)

Producers that reported **not** using antibiotics by primary production of the operation



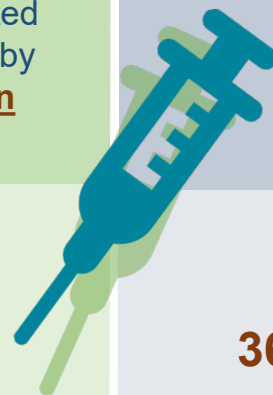
**37.1%** of meat goat operations



**43.7%** of dairy goat operations



**26.6%** of "other" goat operations e.g., pet/companion, brush control, or packing

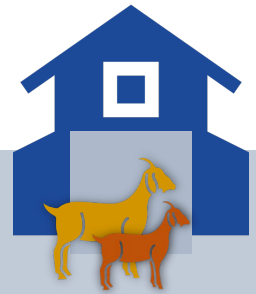


**36.1%** of CA goat producers reported **not** using antibiotics

## A more in-depth NAHMS follow-up survey with biological sampling

**82** CA goat producers completed Phase II after already completing Phase I

Accounting for approximately **21,200** head of goats and kids, which is estimated as **16.3%** of the goats on operations with 5 or more head in CA.



**Of CA goat operations:**



**67.5%** administered any vaccines to any goats



**23.7%\*\*** routinely performed somatic cell count (SCC) testing on the milk from the herd



**33.5%\*\*** performed any cultures on milk produced on the operation

**Percentage of CA operations** that gave kids or adults **any antibiotics** (other than ionophores) to prevent, control, or treat a disease or disorder from September 1, 2018 through August 31, 2019



**in drinking water**

Kids: **0.5%**  
Adults: **0.2%**  
Either: **0.7%**



**in feed\*** (including milk, milk replacer, or starter/creep feed)

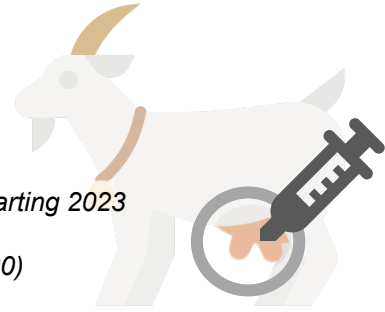
Preweaned kids: **1.6%**  
Weaned kids: **0.2%**  
Adults: **1.1%**  
Any: **1.6%**

**24.4%** of CA operations\*\* **treated at dry-off** with intramammary (IMM) antibiotics

\*Antibiotics permissible to be given to goats in feed under CPG 615.115

\*\*Operations that milked any dairy does and had 5 or more does

# Intramammary (IMM) antibiotic use and practices for CA goat operations



<sup>†</sup>Over-the-counter status of many medications was changed by FDA GFI #263 starting 2023

<sup>‡</sup>As part of a treatment protocol for does with clinical mastitis

<sup>§</sup>Extra-label drug use by veterinarians is permissible under AMDUCA (21 CFR 530)

## Treatment with IMM antibiotics was based on<sup>†‡</sup>

**77.4%**

Veterinary recommendation<sup>§</sup>

**15.6%**

Recommendation from other producers

**55.1 %**

Previous treatment effectiveness

**41.8%**

Previous culture and antimicrobial sensitivity results

**14.7%**

Individual doe culture results before therapy

## IMM antibiotics given<sup>‡§</sup>

**41.8%**

Spectramast® LC (ceftiofur hydrochloride)

**55.1%**

ToDAY® /Cefa-Lak® (cephapirin)

**4.2%**

DariClox® (cloxacillin)

**10.6%**

Pirsue® (pirlimycin hydrochloride)

**4.2%**

Masti-Clear™ (penicillin)

## How IMM antibiotics were typically administered<sup>‡§</sup>

**86.4%**

The whole tube administered into one teat

**13.6%**

A tube split between two teats

**20.8%**

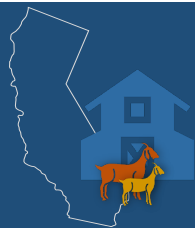
Spectramast® DC (ceftiofur hydrochloride)

**79.2%**

ToMORROW®/Cefa-Dri (cephapirin benzathine)

**5.9%**

Abadry Plus® Suspension (penicillin G procaine/novobiocin)






## Top conditions reported and treated with antibiotics (not given in feed or water) on CA goat operations

from September 1, 2018 through August 31, 2019 by goat class





### Preweaned kids

Conditions	% of operations with preweaned kids (their % affected)	% of affected preweaned kids that received an antibiotic	Antibiotic classes	% of operations that used antibiotics for preweaned kids	% of preweaned kids that received this antibiotic
 Digestive problems	21.7% (10.2%)	73.5%	Sulfonamides	13.7%	1.7%
 Kidding problems or other perinatal conditions	14.1% (0.8%)	9.9%	Tetracyclines	32.2%	47.7%
 Respiratory problems	9.0% (9.0%)	79.2%	Macrolides	3.8%	45.3%





### Weaned kids

Conditions	% of operations with weaned kids (their % affected)	% of affected weaned kids that received an antibiotic	Antibiotic classes	% of operations that used antibiotics for weaned kids	% of weaned kids that received this antibiotic
 Digestive problems	8.2% (1.9%)	52.9%	Tetracyclines	39.5%	32.7%
 Respiratory problems	7.4% (1.8%)	67.3%	Beta-lactams	24.9%	13.0%
			Macrolides	5.8%	22.1%
			Florfenicol	27.9%	8.7%






### Adult bucks & wethers

Conditions	% of operations with adult bucks & wethers (their % affected)	% of affected adult bucks & wethers that received an antibiotic	Antibiotic classes	% of operations that used antibiotics for adult bucks & wethers	% of adult bucks & wethers that received this antibiotic
 Respiratory problems	11.5% (3.8%)	75.3%	Tetracyclines	10.7%	15.1%
 Reproductive problems	5.8% (1.3%)	Too few to report	Beta-lactams	41.8%	36.4%
			Florfenicol	10.6%	21.2%

Top conditions reported, *cont.*

## Adult does

Conditions	% of operations with adult does (their % affected)	% of affected adult does that received an antibiotic	Antibiotic classes	% of operations that used antibiotics for adult does	% of adult does that received this antibiotic
 Respiratory problems	15.1% (2.6%)	35.2%	Tetracyclines	17.7%	43.5%
 Mastitis	14.3% (0.9%)	41.4%	Beta-lactams	52.3%	18.2%
 Digestive problems	8.8% (0.8%)	17.6%	Florfenicol	16.7%	18.7%

## Key

- Digestive problems (e.g., scours, overeating/ enterotoxemia, coccidia)
- Kidding problems or other perinatal conditions (e.g., floppy kid syndrome, weak kids)
- Mastitis
- Reproductive problems (e.g., penile or testicular disorders, urinary calculi)
- Respiratory problems (e.g., pneumonia, shipping fever, runny nose)

Nearly **50** goat operations in California voluntarily submitted fecal samples for AST using a panel of drugs important to human health.<sup>^</sup>

**651**

goats had samples submitted for *Campylobacter* spp. testing

Less than 10% of all sampled operations tested positive for *Campylobacter*.<sup>||</sup>

Some individual samples were resistant to ciprofloxacin and nalidixic acid, although these drugs are not used in goats.

**792**

goats had samples submitted for *Salmonella* and Shiga toxin-producing *E. coli* (STEC) testing

Less than 2% of all sampled operations tested positive for *Salmonella*.<sup>||</sup>

*None of the samples were resistant to any of the antibiotics tested.*

Less than 2% of all sampled operations tested positive for STEC.<sup>||</sup>

*None of the samples were resistant to any of the antibiotics tested.*

<sup>^</sup>Refer to NARMS for antibiotics tested

<https://www.cdc.gov/narms/antibiotics-tested.html>

<sup>||</sup>Exact numbers and proportions could not be reported for reasons of confidentiality

## Antibiotic Susceptibility Testing (AST)

for pathogens of human health importance

