



CALIFORNIA DEPARTMENT OF  
FOOD & AGRICULTURE



# 2023 Veterinary Feed Directive Summary Report



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## Executive Summary

Veterinary feed directives (VFDs) are written orders that establish veterinary oversight for the administration of certain drugs in animal feed to food-producing animals. The federal VFD rule requires livestock producers to have their animals evaluated and diagnosed by a veterinarian who can issue a VFD order to the livestock producer for the lawful use of feed containing a VFD drug. In 2015, the United States Food and Drug Administration (FDA) introduced legislation that extended the list of drugs requiring VFD orders to include medically important antimicrobial drugs (MIADs) that had previously been available over the counter. This expansion of federal oversight was intended to help mitigate the development of antimicrobial resistance in food-producing livestock. For the full scope of federal regulations pertaining to VFD orders, drugs, and VFD medicated feeds, refer to Title 21, Code of Federal Regulations (21 CFR) Part 558.6, found here: <https://www.ecfr.gov/current/title-21/section-558.6>.

California Senate Bill 27 (Hill, 2015) chaptered as Food and Agricultural Code (FAC) Division 7, Chapter 4.5, placed additional restrictions on MIADs used in livestock production and mandated the California Department of Food and Agriculture (CDFA) to gather information on sales within the state.

In 2017, CDFA introduced the Antimicrobial Use and Stewardship (AUS) Program that mirrored and expanded upon FDA's antimicrobial resistance mitigation goals. AUS is the first program to span two CDFA divisions: the Inspection Services Division (ISD), which handles regulation, inspection, compliance, and enforcement; and the Animal Health and Food Safety Services Division (AHFSS), which focuses on stewardship, surveys and studies, judicious use, and best on-farm practices. The divisions work cooperatively to promote public health and welfare via a safe and stable food supply for California.

### General Information

This report comprises five main sections:

- Background
- Data Summaries, Tables and Figures
- Data on Manufacturing and Distribution Reports
- Outreach and Education (new)
- Conclusion

The data being reported encompasses a span of five years. For information specific to data reported prior to the five years in this report, the background and definitions of VFDs, manufacturing and distributing VFD feed, or CDFA's data collection methods, please reference previous years' VFD Summary Reports at the links below:

- 2022 Veterinary Feed Directive Summary Report  
[https://www.cdfr.ca.gov/is/ffldrs/pdfs/vfd\\_summary\\_report\\_2022.pdf](https://www.cdfr.ca.gov/is/ffldrs/pdfs/vfd_summary_report_2022.pdf)
- 2020 – 2021 Veterinary Feed Directive Summary Report  
[https://www.cdfr.ca.gov/is/ffldrs/pdfs/aus\\_vfd\\_summary\\_report\\_20-21.pdf](https://www.cdfr.ca.gov/is/ffldrs/pdfs/aus_vfd_summary_report_20-21.pdf)
- 2019 VFD Summary Report

[https://www.cdfa.ca.gov/is/ffldrs/pdfs/AUS\\_VFD\\_Summary\\_Report\\_2019.pdf](https://www.cdfa.ca.gov/is/ffldrs/pdfs/AUS_VFD_Summary_Report_2019.pdf)

- 2017 – 2019 Quarter 1 VFD Summary Report  
[https://www.cdfa.ca.gov/is/ffldrs/pdfs/AUS\\_VFD\\_Summary\\_Report\\_2017-19.pdf](https://www.cdfa.ca.gov/is/ffldrs/pdfs/AUS_VFD_Summary_Report_2017-19.pdf)

## Scope of Reporting

This report summarizes manufacturing and distribution data from the last five years for medicated feed containing a VFD drug or combination of VFD drugs in California. See the previous VFD summary report links in the “General Information” section for any data reported prior to the last five years.

The reporting period for each VFD order is determined by the issue date expressed on a VFD order. However, because the extent of time between issue and expiration date varies by VFD drug or combination of VFD drugs, AUS will periodically receive VFD orders outside of the requested reporting periods causing slight variations in the data shown in previous years. The data reported is categorized by:

- The MIADs used to manufacture VFD medicated feed,
- The species the feed is intended for, and
- The indication for use as it falls into the category of “respiratory disease,” “gastrointestinal disease,” “either/both,” or “other.”

Data will be categorized into “Not Independently Reported (NIR)” when VFD orders issued to a single species or a single type of VFD drug represents less than 5% of the total VFD orders collected in a year. Also, if a reported species on a VFD order or the VFD drug(s) make up less than 5% of the total manufactured or distributed medicated feed, it will be captured within the NIR category. The NIR category is designed to protect the confidentiality of producer information that may be easily identified based on rare or unique characteristics, such as when a VFD drug is used for only one species.

For reference to the number of livestock animals in California by year, refer to United States Department of Agriculture’s (USDA) National Agricultural Statistics Service (NASS) database at

[https://www.nass.usda.gov/Statistics\\_by\\_State/California/index.php](https://www.nass.usda.gov/Statistics_by_State/California/index.php).

## Protecting Confidential Information

To provide the public a summary of information collected under Food and Agricultural Code (FAC) Division 7 Chapter 4.5, this information is being reported in a manner consistent with maintaining confidentiality of a business or an individual’s information in accordance with FAC Section 14407.

All data collected is subject to extensive internal review prior to publication. If it is determined that summary information would identify, or have the potential to identify, an individual or business, the data is reported as “Other” or “Not Independently Reported.” The report includes a list of information that is included in the “Other” or “Not Independently Reported” categories.

Data collected under FAC Division 7, Chapter 4.5 and FAC Section 14902.5 is confidential and exempt under FAC Section 14407 from release under the California

Public Records Act (CPRA) (Government Code Title 1, Division 10). As such, it will not be disclosed to any person or government agency, except to the Veterinary Medical Board (VMB), as appropriate.

### Description of Tables and Figures

The information presented in the tables and figures is based on quarterly collections of VFD orders and other manufacturer or distributor VFD information from the last five years. Whether data is reported independently or not independently will vary each year depending on factors that could lead to revealing personally identifying information (PII) of a business or producer. Some factors may include, but are not limited to:

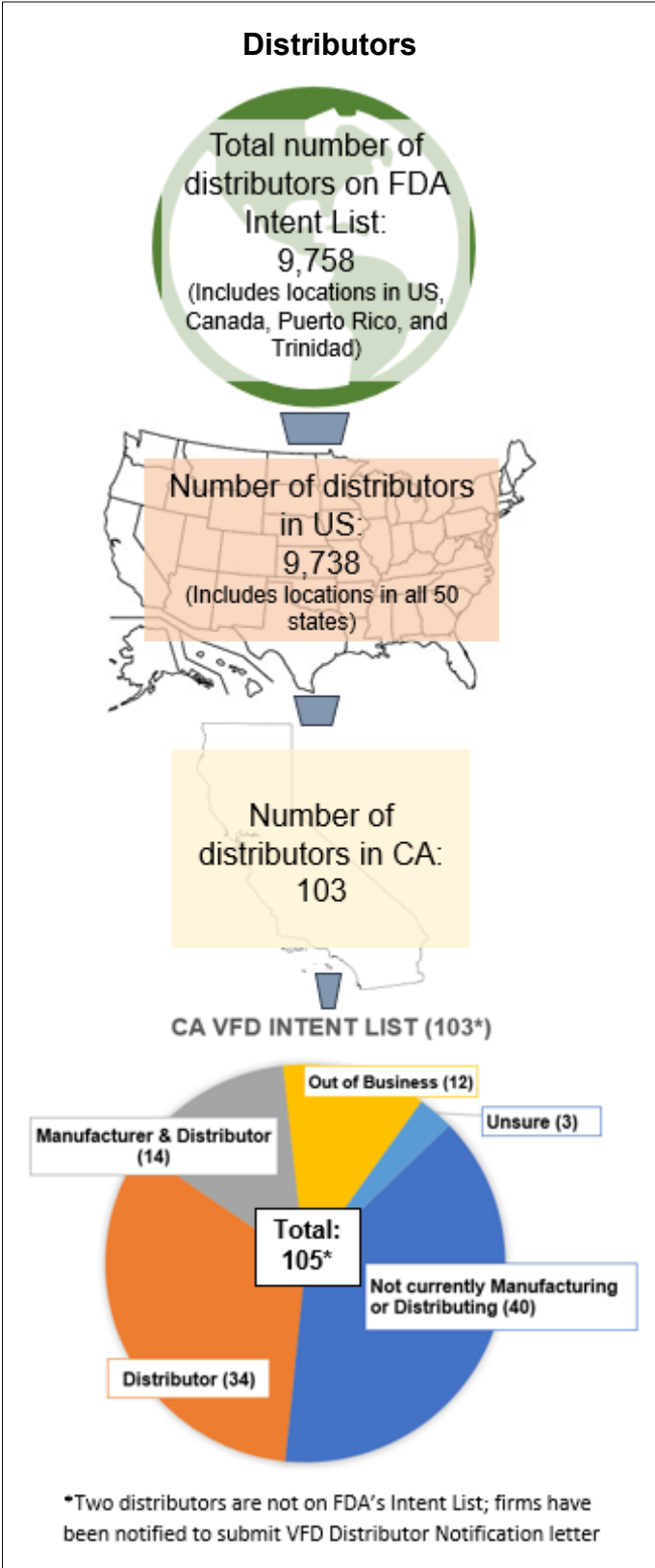
- Disease outbreaks,
- Environmental factors,
- Different drugs being approved or used, and
- Firm location changes.

These extenuating factors between years may make it difficult to directly compare certain data in either table or figure form. Additionally, AUS will periodically receive updates or corrections to the information previously given in VFD orders after their original submission date. Should this occur, it may cause slight variations in the data provided for years already reported. Some figures may have the following abbreviations for VFD drugs:

- Chlortetracycline (CTC)
- Neomycin (Neo)
- Oxytetracycline (Oxy)

For a list of drugs approved by FDA for use in medicated animal feed, including VFD drugs, approved combinations with VFD drugs and additional information, please review the 21 CFR Part 558 at:

<https://ecfr.federalregister.gov/current/title-21/chapter-I/subchapter-E/part-558>.



## Veterinary Feed Directive Data Tables

The data shown in the following tables encompasses five years and is subject to fluctuations based on factors that include the timeliness of industry reporting and the date the summary report was published. Numbers are likely to update in future summary reports.

### Veterinary feed directive order summary

Reported for 2019 – 2023  
Veterinary feed directive order data

**Table 1a**

	2019	2020	2021	2022	2023*
<b>Total Number of VFD Orders<sup>1</sup></b>	714	649	595	629	631
<b>Number of VFD Collection Locations<sup>2</sup></b>	36	39	27	31	27
<b>Total Number of Locations VFD Orders Were Issued to<sup>3</sup></b>	337	338	302	307	315
<b>Total Number of Veterinarians Who Issued VFD Orders<sup>4</sup></b>	111	101	100	94	94

1. Total number of VFD orders received from manufacturers and distributors located in California (CA), that are listed on FDA’s VFD intent list. The total number of VFD orders includes only CA locations where the VFD feed is intended to be fed.
  2. Number of VFD collection locations is inclusive of all manufacturers and distributors in CA that received VFD orders.
  3. Total number of locations to which VFD orders were issued represents the locations where the animals were housed.
  4. Total number of veterinarians who issued VFD orders are licensed veterinarians who deemed that VFD feed should be used for treatment.
- \* Total number of VFD orders received from manufacturers and distributors located in CA in the year 2023 will likely show fluctuations due to timeliness of reporting. Reporting periods are determined by the VFD issue date and is not a guarantee of when the VFD will be received by the manufacturer, or distributor, or submitted for collection to CDFA.

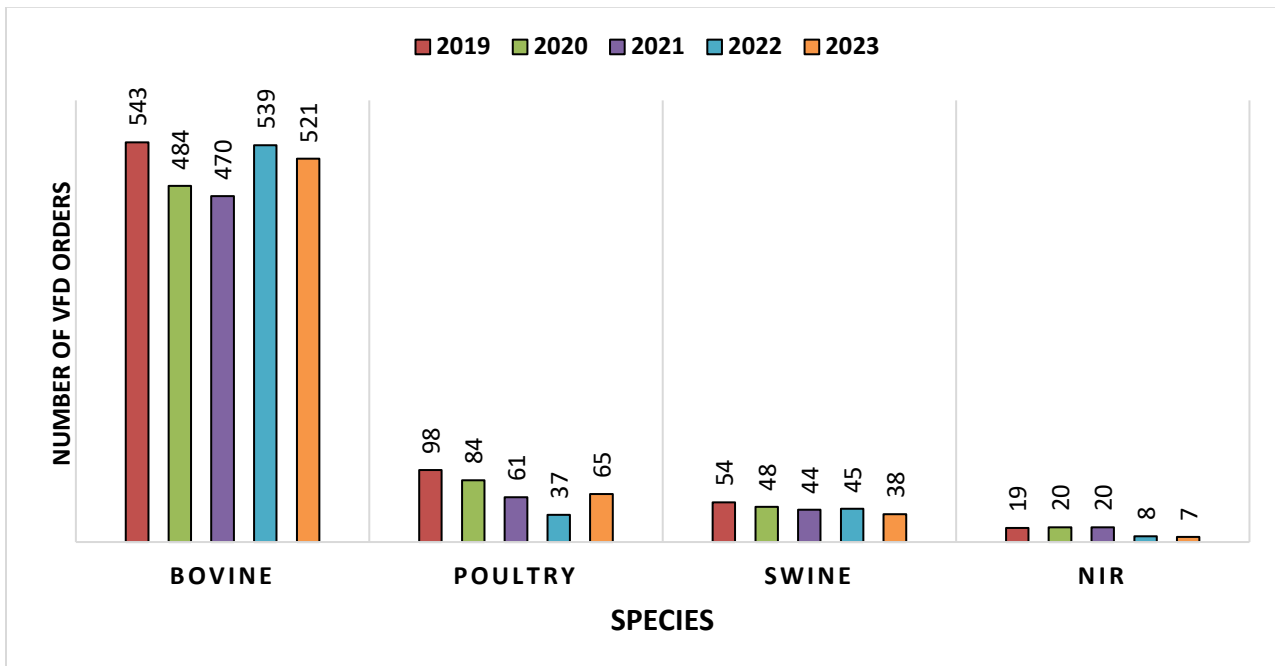
## Number of VFD orders represented by intended species

Reported for 2019 – 2023  
Veterinary feed directive order data

**Table 2a**

Species	2019	2020	2021	2022	2023*
Bovine	543	484	470	539	521
Poultry	98	84	61	37	65
Swine	54	48	44	45	38
NIR <sup>1</sup>	19	20	20	8	7
<b>Total</b>	<b>714</b>	<b>636</b>	<b>595</b>	<b>629</b>	<b>631</b>

**Figure 2a**



\* Total number of VFD orders received from manufacturers and distributors located in CA in the year 2023 will likely show fluctuations due to timeliness of reporting.

1. NIR = Not Independently Reported. In this figure, this category includes Aquaculture, Caprine, and Ovine. These species independently represent less than 5% of the total VFD orders.

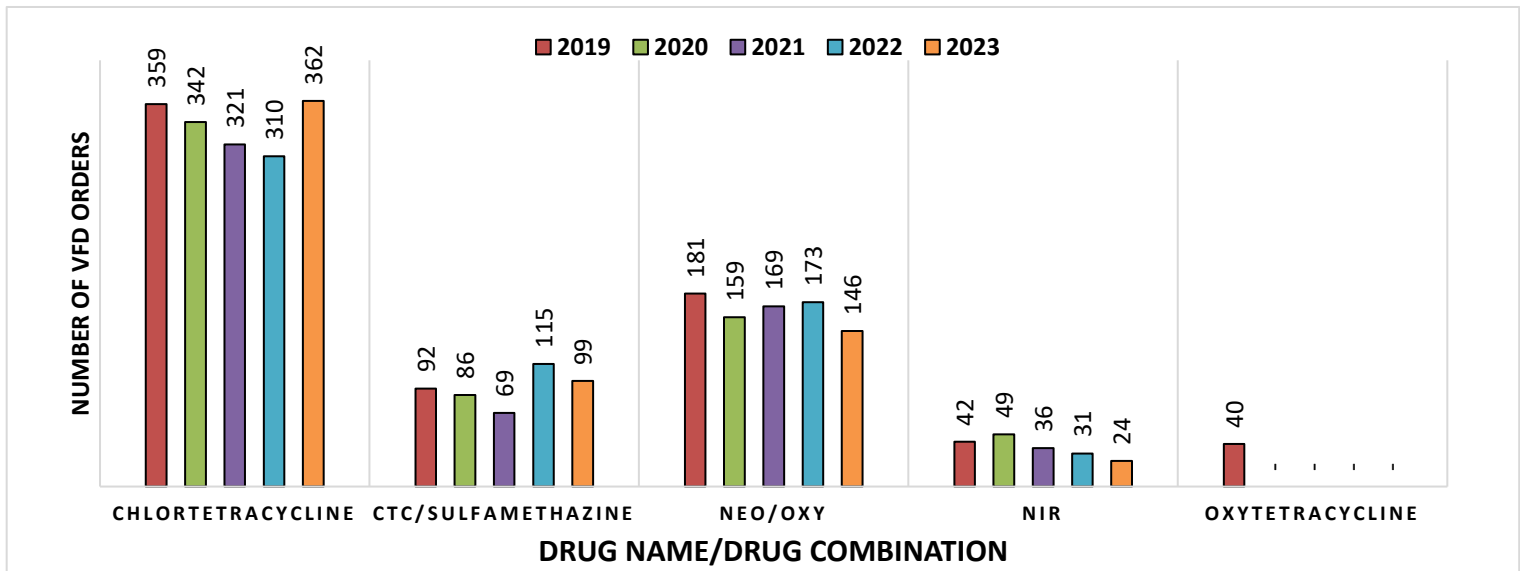
## Number of VFD orders represented by drug name

Reported for 2019 – 2023  
Veterinary feed directive order data

**Table 3a**

Drug Name/Drug Combination Indicated on VFD Order	2019	2020	2021	2022	2023*
Chlortetracycline	359	342	321	310	362
CTC/Sulfamethazine	92	86	69	115	99
Neo/Oxy	181	159	169	173	146
NIR <sup>1</sup>	42	49	36	31	24
Oxytetracycline <sup>2</sup>	40	-	-	-	-
<b>Total</b>	<b>714</b>	<b>636</b>	<b>595</b>	<b>629</b>	<b>631</b>

**Figure 3a**



\* Total number of VFD orders received from manufacturers and distributors located in CA in the year 2023 will likely show fluctuations due to timeliness of reporting.

1. NIR = Not Independently Reported. In this figure, this category includes Chlortetracycline/Tiamulin, Florfenicol, Lincomycin, Oxytetracycline, Neomycin, Tilmicosin, Tylosin, and Virginiamycin (only represented in 2017). These drugs/combinations independently represent less than 5% of the total VFD orders collected.
2. Oxytetracycline is represented in 2019 due to higher number of VFD orders for specific non-combination drug and not in NIR.



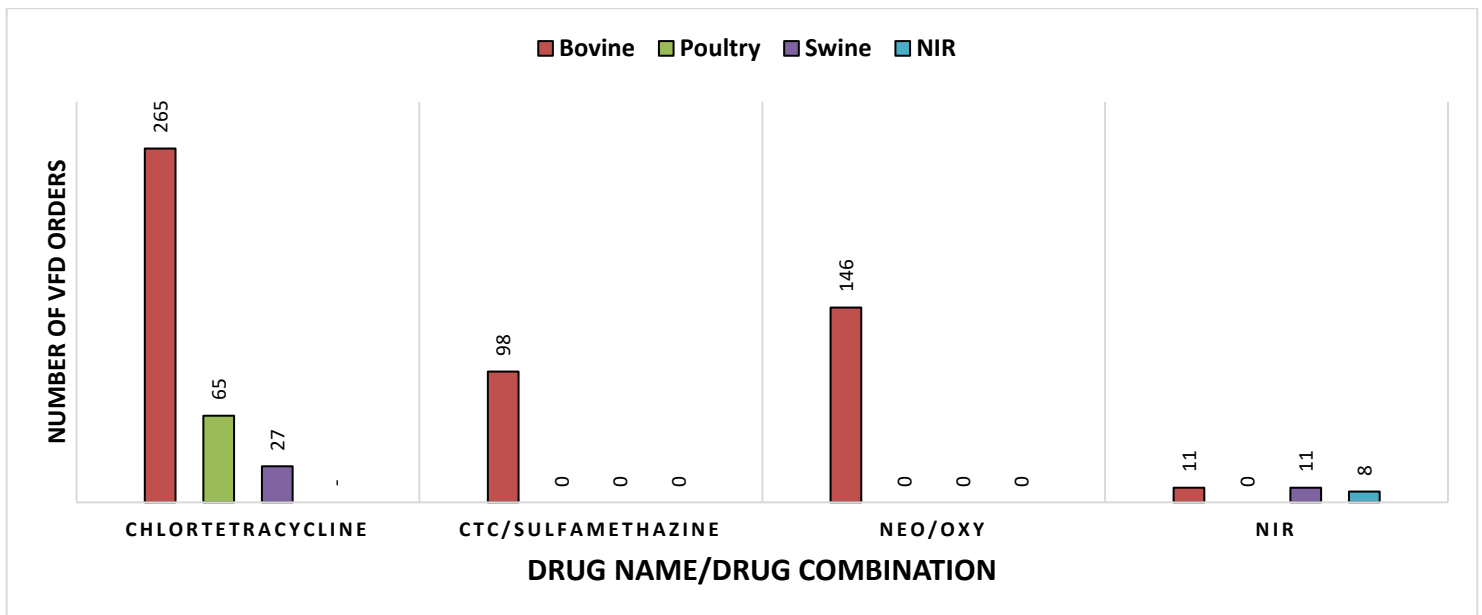
## Number of VFD orders by drug and intended species

Reported for 2023  
Veterinary feed directive order data

**Table 4a**

2023					
Drug Name/Drug Combination Indicated on VFD Order	Bovine	Poultry	Swine	NIR <sup>1</sup>	Total
Chlortetracycline	265	65	27	-	<b>357</b>
CTC/Sulfamethazine	98	-	-	-	<b>98</b>
Neo/Oxy	146	-	-	-	<b>146</b>
NIR <sup>2</sup>	11	-	11	8	<b>30</b>
<b>Total</b>	<b>520</b>	<b>65</b>	<b>38</b>	<b>8</b>	<b>631</b>

**Figure 4a**



1. NIR = Not Independently Reported. In this figure, this category for species includes Aquaculture, Caprine, and Ovine. These species independently represent less than 5% of the total VFD orders.
2. NIR = Not Independently Reported. In this figure, this category for drug name/drug combination independently represents Lincomycin, Neomycin, Oxytetracycline, Tilmicosin, and Tylosin.

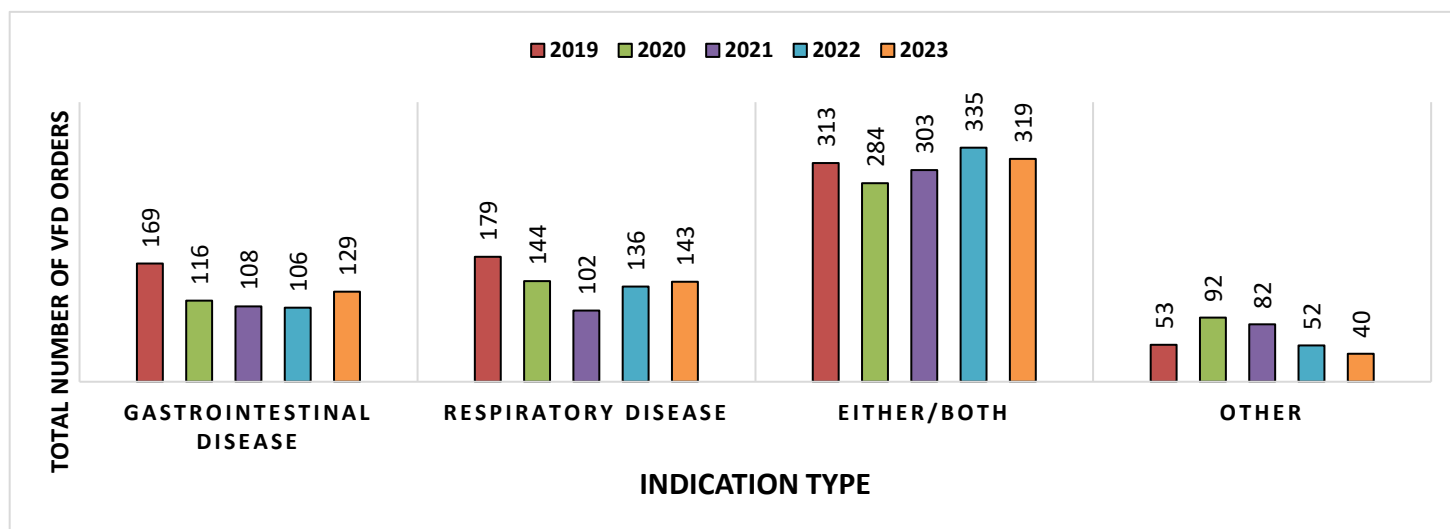
## Number of VFD orders by indication type

Reported for 2019 – 2023  
Veterinary feed directive order data

**Table 5a**

Indication Type	2019	2020	2021	2022	2023*
Gastrointestinal Disease <sup>1</sup>	169	116	108	106	129
Respiratory Disease <sup>2</sup>	179	144	102	136	143
Either/Both <sup>3</sup>	313	284	303	335	319
Other <sup>4</sup>	53	92	82	52	40
<b>Total</b>	<b>714</b>	<b>636</b>	<b>595</b>	<b>629</b>	<b>631</b>

**Figure 5a**



\* Total number of VFD orders received from manufacturers and distributors located in CA in the year 2023 will likely show fluctuations due to timeliness of reporting.

1. “Gastrointestinal (GI) Diseases” include bacterial enteritis, bluecomb disease, hexamitiasis, necrotic enteritis, porcine proliferative enteropathy, swine dysentery, swine ileitis, and transmissible enteritis.
2. “Respiratory Diseases” include bacterial pneumonia, chronic respiratory disease, and respiratory disease.
3. “Either/Both” is representative of two indications per VFD order, GI and respiratory diseases.
4. “Other” diseases include abortions, anaplasmosis, bacterial hemorrhagic septicemia, columnaris disease, fowl cholera, infectious synovitis, jowl abscesses, leptospirosis, liver abscesses, and vibronic abortions.

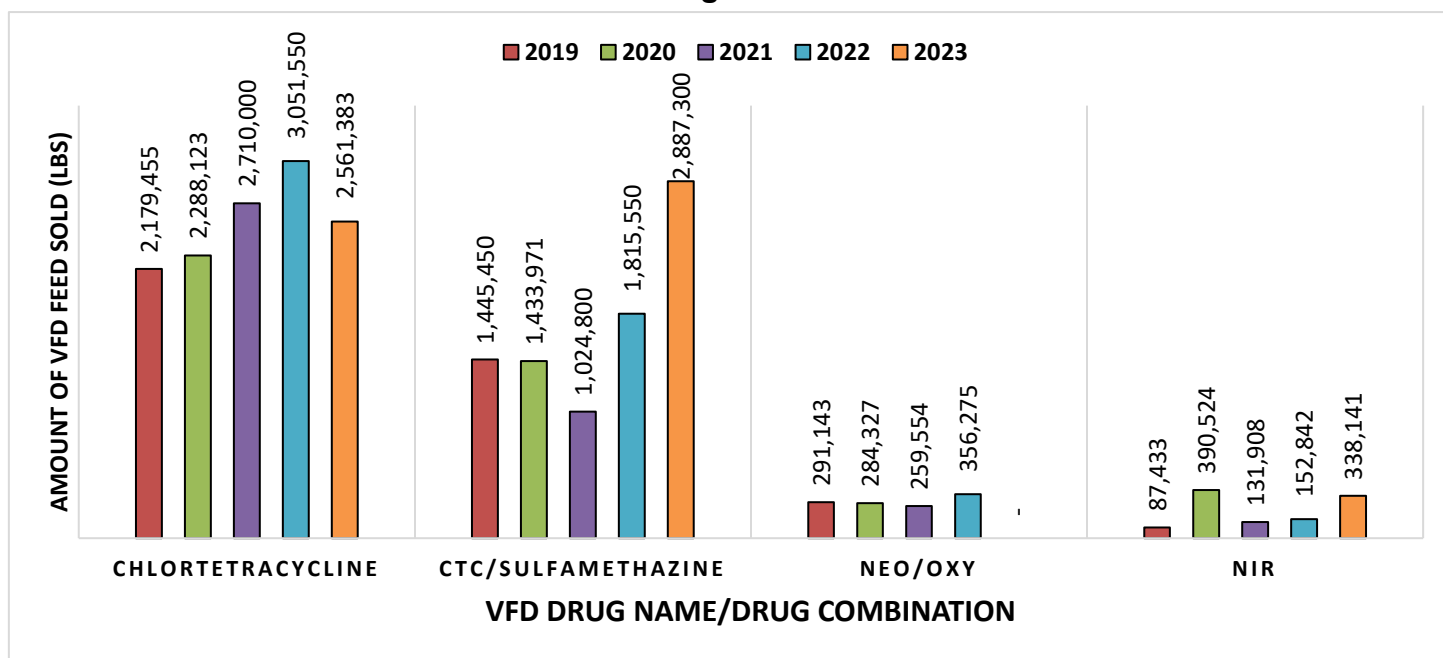
## Data on 2023 Manufacturing and Distribution

### Amount of VFD feed sold by distributors Reported for 2019 – 2023 Distributor report for amount of VFD feed sold data

**Table 6a**

<b>Total pounds (lbs) of VFD feed sold</b>					
<b>Drug Name/Drug Combination Used in VFD Feed</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>
Chlortetracycline	2,179,455	2,288,123	2,710,000	3,051,550	2,561,383
CTC/Sulfamethazine	1,445,450	1,433,971	1,024,800	1,815,550	2,887,300
Neo/Oxy	291,143	284,327	259,554	356,275	-
NIR <sup>1</sup>	87,433	390,524	131,908	152,842	338,141
<b>Total</b>	<b>4,003,481</b>	<b>4,396,945</b>	<b>4,126,262</b>	<b>5,376,217<sup>†</sup></b>	<b>5,786,824<sup>‡</sup></b>

**Figure 6a**



1. NIR = Not Independently Reported. In this figure, this category includes CTC/ Tiamulin, Florfenicol, Lincomycin, Neomycin, Oxytetracycline, Neo/Oxy, Spectinomycin, Sulfadimethoxine, and Tiamulin. These drugs/combinations independently represent less than 5% of the total amount of drug sold by distributors.

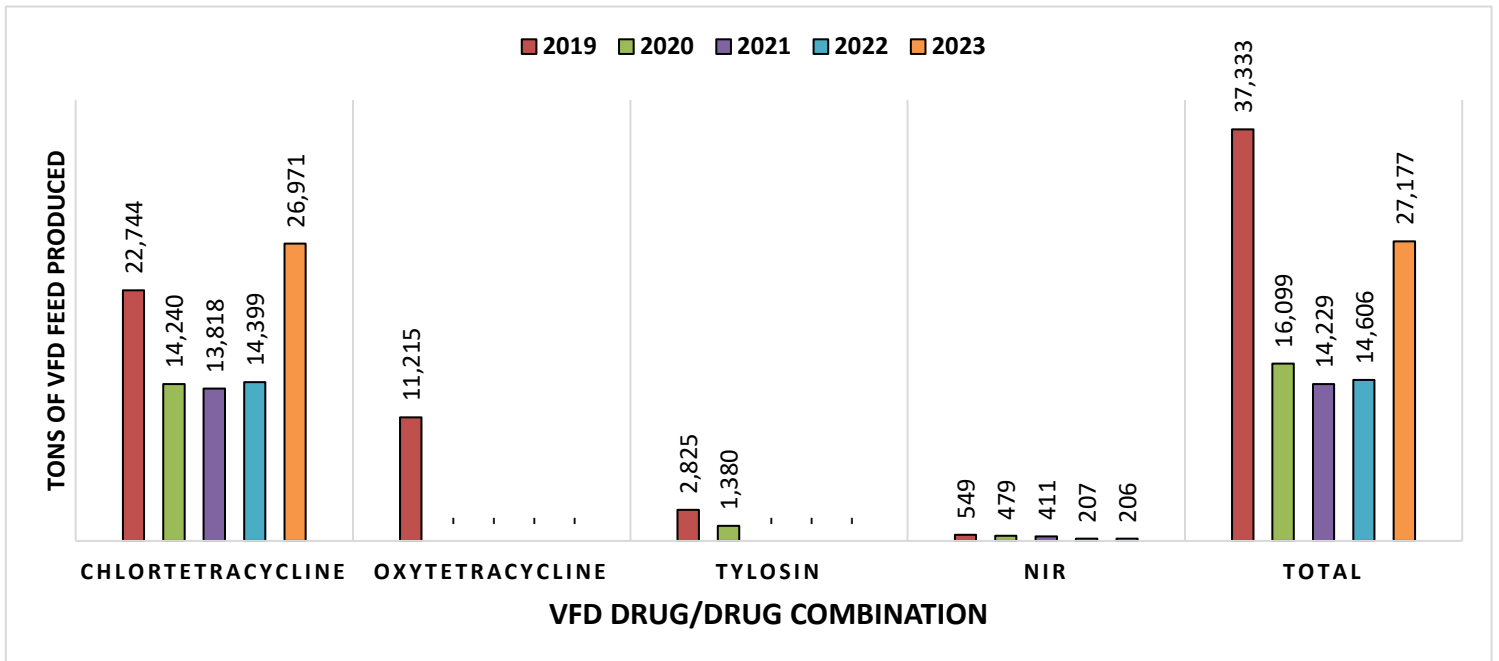
<sup>†</sup> CDFA's examination of the data included in this report indicates an increase in VFD feed containing CTC distributed following a period of intense heat.  
<sup>‡</sup> CDFA's examination of the data included in this report indicates an increase in VFD feed containing CTC/Sulfamethazine distributed following a period of extreme rain and flooding in California.

**Tons of VFD feed produced by manufacturers**  
 Reported for 2019 – 2023  
 Manufacturer report for tons of VFD feed produced data

**Table 7a**

<b>Tons of VFD Feed Produced</b>					
<b>Drug Name/Drug Combination Used in VFD Feed</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>
Chlortetracycline	22,744	14,240	13,818	14,399	26,971
Oxytetracycline	11,215	-	-	-	-
Tylosin	2,825	1,380	-	-	-
NIR <sup>1</sup>	549	479	411	207	206
<b>Total</b>	<b>37,333</b>	<b>16,099</b>	<b>14,229</b>	<b>14,606</b>	<b>27,177</b>

**Figure 7a**



1. NIR = Not Independently Reported. In this figure, this category includes CTC/Sulfamethazine, Lincomycin, Neo/Oxy, Oxytetracycline, Tiamulin, and Tilmicosin. These drugs/combinations independently represent less than 5% of the total tons of VFD feed produced.

## Outreach and Education

The Antimicrobial Use and Stewardship (AUS) programs in CDFA's Inspection Services Division (ISD) and Division of Animal Health and Food Safety Services (AHFSS) worked together to identify VFD orders that were not adhering to the standards set forth by the 21 CFR Part 558.6. This collaborative effort led to the formulation of comprehensive educational materials for both veterinarians who issue VFDs and feed establishments that distribute VFD medicated feed, including the following<sup>1</sup>:

- [Common Issues on Veterinary Feed Directives](#)
- [Filling a Veterinary Feed Directive](#)
- [VFD Checklist](#)

In 2022, the "California Department of Food and Agriculture's Livestock Veterinary Feed Directive Online Training" was released as a result of a collaborative effort between CDFA's ISD AUS Program, CDFA's Safe Animal Feed Education ([SAFE](#)) Program, and University of California (UC), Davis, partners at the Food Animal Residue Avoidance Databank ([FARAD](#)). More information on this training can be found on the CFRP's Run of the Mill blog: <https://blogs.cdfa.ca.gov/CFRP/index.php/updated-veterinary-feed-directive-training-available-online/>. The online program is developed to assist manufacturers and distributors navigate the specific federal regulations applicable to VFDs in the CFR, federal VFD drug approvals, identify and verify the elements of a complete and lawful VFD order prior to VFD feed distribution, the different types of VFD Type A medicated articles, Type B VFD medicated feed, and Type C VFD medicated feed, and more. This training has had 30 registrations since its release and was updated in 2023 to reflect additional needs by feed distributors and veterinarians. Additionally, the SAFE program revamped its website to include a page specifically geared to state and federal VFD resources, including the linked outreach documents listed above.

In 2023, AHFSS AUS engaged with 57 veterinarians, assembled and mailed 39 packets of tailored outreach and education materials, logged five phone consultations with veterinarians to discuss VFD outreach materials, and worked with one veterinary hospital to proactively review VFDs prior to issuance.

Both ISD AUS and AHFSS AUS programs performed outreach efforts to assist veterinarians who issue VFDs, as well as VFD distributors within California, to promote best practices to ensure a wholesome supply of meat and milk for California consumers. This outreach helps to better identify any inaccurate or incomplete fields on a VFD order, and that regulations for antimicrobial use in feed are being followed.

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<sup>1</sup> The listed documents can be found at <https://www.cdfa.ca.gov/is/ffldrs/VeterinaryFeedDirective.html>

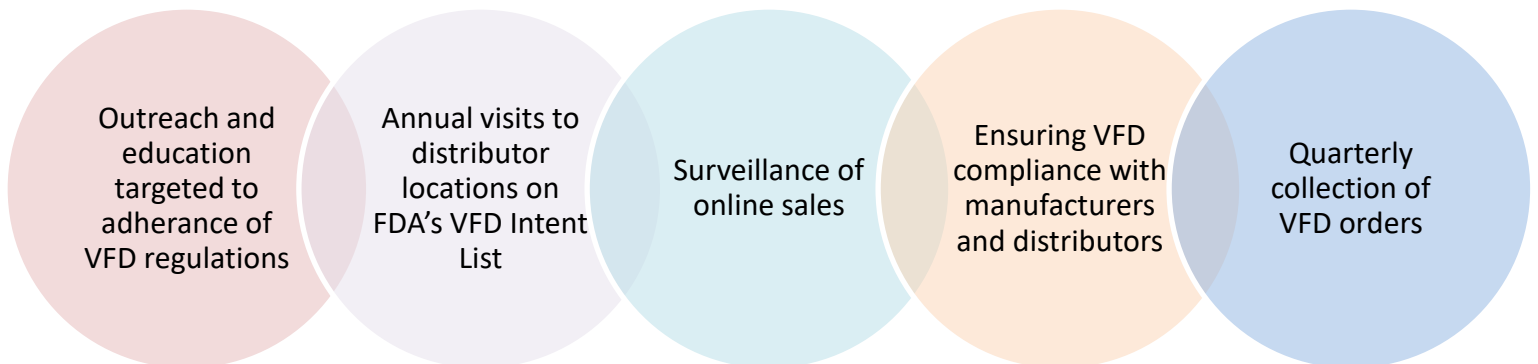
## Conclusion

This report illustrates the AUS Program's commitment to the collection and utilization of aggregated information to make analytical, science-based decisions; maintain transparency in reporting; and focus on issues related to [One Health](#). It is the intent of AUS to collect, review, and present VFD data transparently to the public while maintaining data confidentiality in accordance with FAC Section 14407. The intent of this report is to help the public gain a better understanding of the issuance, manufacture, and distribution of medicated feed containing VFD drugs.

ISD AUS also continues to cooperatively assist the AHFSS AUS staff in drafting informational packets to veterinarians who require additional education on completing a VFD, allowing the programs to cooperatively develop customized outreach and education materials targeted at veterinary adherence to VFD regulations. More information on this outreach effort can be found on the AHFSS AUS VFD Resources website, <https://www.cdfa.ca.gov/ahfss/aus/vfdresources/>.

Moving forward, both divisions of the AUS Program will continue to work with VFD feed manufacturers, distributors, and veterinarians to ensure continued compliance with state and federal mandates through direct outreach, audits, VFD data collection, and enforcement, as needed.

### AUS activities related to VFDs:



## References

### Links

AUS Guidelines for Judicious Use -

[https://www.cdfa.ca.gov/ahfss/AUS/docs/Guidelines\\_Judicious\\_Use\\_of\\_Antimicrobials\\_Livestock.pdf](https://www.cdfa.ca.gov/ahfss/AUS/docs/Guidelines_Judicious_Use_of_Antimicrobials_Livestock.pdf)

AUS Report to the Legislature -

[https://www.cdfa.ca.gov/ahfss/AUS/docs/CDFA\\_AUS\\_Report\\_2019.pdf](https://www.cdfa.ca.gov/ahfss/AUS/docs/CDFA_AUS_Report_2019.pdf)

AUS Principles of Antimicrobial Stewardship -

[https://www.cdfa.ca.gov/ahfss/AUS/docs/Antimicrobial\\_Stewardship\\_Principles.pdf](https://www.cdfa.ca.gov/ahfss/AUS/docs/Antimicrobial_Stewardship_Principles.pdf)

AUS Veterinarians' Guidelines for Judicious Use of Antimicrobials -

[https://www.cdfa.ca.gov/ahfss/AUS/docs/Guidelines\\_Veterinarians\\_Judicious\\_Use\\_of\\_Antimicrobials\\_Livestock.pdf](https://www.cdfa.ca.gov/ahfss/AUS/docs/Guidelines_Veterinarians_Judicious_Use_of_Antimicrobials_Livestock.pdf)

AUS Website - <https://www.cdfa.ca.gov/ahfss/AUS/Stewardship.html>

CDFA Commercial Feed Regulatory Program -

<https://www.cdfa.ca.gov/is/ffldrs/CommercialFeedReg.html>

CDFA Inspection Services - <https://www.cdfa.ca.gov/is/>

CDFA Livestock Drug Program - <https://www.cdfa.ca.gov/is/ffldrs/LivestockDrug.html>

CDFA Safe Animal Feed Education Program -

<https://www.cdfa.ca.gov/is/ffldrs/safe.html>

CDFA VFD Page - <https://www.cdfa.ca.gov/is/ffldrs/VeterinaryFeedDirective.html>

CDFA Website - <https://www.cdfa.ca.gov/>

CPG Sec 615.115 Extralabel Use of Medicated Feeds for Minor Species -

<https://www.fda.gov/regulatory-information/search-fda-guidance-documents/cpg-sec-615115-extralabel-use-medicated-feeds-minor-species>

eCFR Part 558 New Animal Drugs for Use in Animal Feeds -

<https://www.ecfr.gov/current/title-21/chapter-I/subchapter-E/part-558/subpart-A/section-558.4>

FARAD

<http://www.farad.org/>

FDA 2017 Summary Report on Antimicrobials Sold or Distributed for Use in Food-Producing Animals - <https://www.fda.gov/media/119332/download>

FDA CVM GFI #120 Veterinary Feed Directive Regulation Questions and Answers -

<https://www.fda.gov/regulatory-information/search-fda-guidance-documents/cvm-gfi-120-veterinary-feed-directive-regulation-questions-and-answers>

FDA CVM GFI #209 The Judicious Use of Medically Important Antimicrobial Drugs in Food-Producing Animals - <https://www.fda.gov/regulatory-information/search-fda-guidance-documents/cvm-gfi-209-judicious-use-medically-important-antimicrobial-drugs-food-producing-animals>

FDA CVM GFI #233 Veterinary Feed Directive Common Format Questions and Answers - <https://www.fda.gov/regulatory-information/search-fda-guidance-documents/cvm-gfi-233-veterinary-feed-directive-common-format-questions-and-answers>

FDA VFD Final Rule - <https://www.govinfo.gov/content/pkg/FR-2015-06-03/pdf/2015-13393.pdf>

FDA VFD Final Rule Homepage: <https://www.fda.gov/animal-veterinary/development-approval-process/veterinary-feed-directive-vfd>

Veterinary Feed Directive Online Training registration link  
<https://na.eventscloud.com/ereg/newreg.php?eventid=634458&t=9b1f964a98855e97447e85a1fe87a073>