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ANTIBIOTIC CHOICES FOR BEEF CATTLE

During the last 30 plus years of practicing veterinary medicine I cannot remember a time when the beef cattle industry had as many antibiotics available for use in our cattle. Additionally, several of these drugs are both unique and powerful in their mode of action. The down side to this situation is the number of choices we have to make. This month I have put together a brief table of information on many of the newer antibiotics and some of the older ones for sake of comparison. This is not meant to be an exhaustive list of all available antibiotics; however, I hope it will instructive.

The brand name, generic drug name and the company that markets the drug is listed in the first column. The second column notes the general class of antibiotic. This is important information for producers and veterinarians when selecting a product to use in sick animals that are not responding to initial therapy. If an animal (or group) is not responding it is prudent to select the second drug from a different class. For example, if a group of calves with pneumonia are not responding to a tetracycline it would be advisable to use a cephalosporin or fluoroquinolone instead of another tetracycline. The third column lists the diseases, pathogens (bacteria names), and/or conditions that the drug is licensed for use as a therapeutic agent. In other words, the company has submitted data to the FDA that proves this drug is effective in the therapy of the disease, pathogen(s), or conditions listed. These are the diseases that this drug can legally be used to treat without a veterinarian's prescription. Most antibiotics are licensed for use in the treatment of Bovine Respiratory Disease (BRD) complex. The common bacterial agents responsible for BRD are *Mannheimia hemolytica* (formerly called *Pastuerella hemolytica*), *Pastuerella multocida*, and *Histophilus somnus* (formerly called *Hemophilus somnus*). Microbiologists commonly re-name organisms during "slow times"—the bugs are the same, just the names have changed. I have abbreviated some of these terms in the chart for brevity—M. hemolytica, P. multocida, and H. somnus for example. Some antibiotics are labeled for treatment of other diseases—anaplasmosis, footrot, woody tongue, and pinkeye are examples. If the condition you are treating is not on the label, you are using the drug in an extra label manner and must have a veterinarian's prescription for this use.

The fourth column is the approved route(s) of administration for the drugs. Again, if you use another route of administration this constitutes extra label use of the antibiotic. The fifth column is the duration of therapy or the time the drug is actively fighting the infection. The numbers in this column are on the label or I extrapolated them from data on the label and/or in the literature. These are my estimates based on my understanding of the data if a length of therapy is not listed on the label. The sixth column contains some of the listed warnings or adverse effects. This information should always be noted before administering any drug to cattle. The seventh column contains the label withdrawal time for the product when used in the manner outlined on the label. If the product is

used in any extra label manner the withdrawal time will be determined by the veterinarian writing the prescription for its extra label use. Remember, the withdrawal time is the minimum time from the last treatment until the animal can go to slaughter. The final column notes whether this drug can be used in an extra label manner at any time. Some of the drugs like the fluoroquinolones cannot be used in an extra label manner, period! Others like Excede® probably should not be used except as labeled.

It is important to consult with your veterinarian on the best and safest uses of antibiotics for your operation. We currently have a large number of very good antibiotics available to treat our cattle; however, if we misuse these products they may be pulled from the market. We must be responsible and accountable for the way we use these drugs in food producing animals.

Table 1. Antibiotic Comparison Chart

Trade Name (generic name) Company	Drug Class	Label Indications: Diseases or Problems	Route of Administration	Duration of Therapy	Warnings & Adverse Effects	Withdrawal Time	Extra Label Use
A 180® (danofloxacin) Pfizer	Floroquinolone	BRD M. hemolytica & P. multocida	SubQ	48 hours	Not for use in dairy cattle	4 days	No
Adspec® (spectinomycin) Pfizer	Aminoglycoside	BRD M. hemolytica, P. multocida, H. somnus	SubQ	24 hours		11 days	Yes
Baytril® 100 (enrofloxacin) Bayer	Floroquinolone	BRD M. hemolytica, P. multocida, H. somnus	SubQ 2 dose rates	3-5 days	Not for use in dairy cattle	28 days	No
Biomycin® 200 (oxytetracycline) Boehringer- Ingleheim	Tetracycline	BRD M. hemolytica , P. multocida	SubQ or IM	72 hours		28 days	Yes
Draxxin® (tulathromycin)	Macrolide	BRD M. hemolytica,	SubQ	7 days	Not for use in lactating	18 days	Yes

Pfizer		P. multocida, H. somnus			dairy cows		
Excede® (ceftiofur) Pfizer	Cephalosporin	BRD M. hemolytica, P. multocida, H. somnus	SubQ Ear	6-7 days	Injection in the artery in the ear can kill cattle. Not for use in dairy cows	Zero Withdrawal Time	Not Advised
Excenel®RTU (ceftiofur) Pfizer	Cephalosporin	BRD M. hemolytica, P. multocida, H. somnus Footrot Metritis	IM or SubQ	3-5 days or 48 hours based on dosage and route of administration used		48 hours	Yes
Liquimycin® LA200 (oxytetracycline) Pfizer	Tetracycline	BRD M. hemolytica, P. multocida, H. somnus Pinkeye Footrot E. coli scours Woody tongue Lepto pomona Metritis	IM or SubQ	24-48 hours based on dosage and route of administration		28 days	Yes
Micotil® 300 (tilmicosin) Elanco	Macrolide	BRD M. hemolytica	SubQ	2 days	Accidental Injections in humans can be fatal	28 days	Not advised
Naxcel® (ceftiofur)	Cephalosporin	BRD M. hemolytica,	IM or SubQ	24 hours		Zero withdrawal	Yes

Pfizer		P. multocida, H. somnus Footrot				time	
Nuflor® (florfenicol) Schering-Plough	Phenicol	BRD M. hemolytica, P. multocida, H. somnus Footrot	IM or SubQ	24-48 hours depending on route of administration IM or SubQ		IM 28 days SubQ 38 days	Yes
Tetradure® 300 (oxytetracycline) Merial	Tetracycline	BRD M. hemolytica, P. multocida, H. somnus Pinkeye Footrot E. coli scours Woody tongue Lepto pomona Metritis	IM or SubQ	7 days	Yes	28 days	

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