

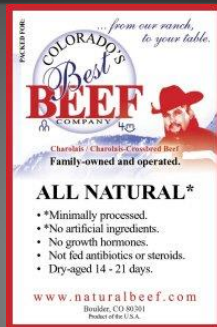
ANTIBIOTICS AND HORMONES IN ANIMAL PRODUCTION

Ron Gill, Ph.D.
Professor & Assoc. Dept. Hd. and Program
Leader For Animal Science Extension
rgill@ag.tamu.edu
979-845-3579

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WHY THE INTEREST?



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Hormones in Beef!!!!

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Implanting



Implants and Estrogen

Estrogen levels in beef products

(nanograms/lb. of food)

Beef from implanted cattle..... 10

Beef from non-implanted cattle7

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Implants and Estrogen

Estrogen levels in beef

(nanograms/lb. of food)

Beef from implanted cattle..... 3

Beef from non-implanted cattle1

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Implants and Estrogen

Estrogen levels in beef products

(nanograms/lb. of food)

Beef from implanted cattle.....3
 Fat from implanted cattle..... 7
 Beef from non-implanted cattle1
 Fat from non-implanted cattle2

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Implants and Estrogen

Estrogen level of beef products

(nanograms/lb. of food)

Beef from a pregnant cow636
 Beef from implanted cattle..... 10
 Beef from non-implanted cattle ...7

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Implants and Estrogen

Estrogen level in livestock/poultry products

(nanograms/lb. of food)

Eggs15,890
 Ice cream2,724
 Milk59
 Beef from a pregnant cow636
 Beef from implanted cattle..... 10
 Beef from non-implanted cattle ...7

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Estrogen

Estrogenic activity of several common foods.

(nanograms/lb. of food)

Soybean flour775,000,000

SBF estrodial equivalent 15,000 ng/lb

Cabbage10,896

Peas1,816

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Estrogen

Estrogenic activity of several common foods.

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Beef from a pregnant cow636

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Table 2. Estrogen production in humans, and potential estrogen intake from implanted beef

Item	Estrogen Amount
Pregnant woman	19,600,000 ng/day
Non-pregnant woman	513,000 ng/day
Adult man	136,000 ng/day
Pre-puberal children	41,000 ng/day
500 g of beef from implanted cattle	7 ng
Hoffman and Eversol (1986)	

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ESTROGEN SOURCES

- ▶ Very low-dose pills have 20 mcg of estrogen plus progestin.
- ▶ Low-dose pills have 30 to 35 mcg of estrogen plus progestin.
- ▶ Phasic pills have changing levels of estrogen and progestin.
- ▶ High-dose pills have about 50 mcg of estrogen plus progestin.
- ▶ <http://www.webmd.com/sex/birth-control/combination-hormonal-birth-control-methods-pills-patch-or-ring>

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ESTROGEN SOURCES

- ▶ 1 Microgram = 1000 Nanograms
- ▶ Low dose pills = 20,000 ng
- ▶ Medium dose pills = 30,000 to 35,000 ng
- ▶ High dose pills = 50,000 ng

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Estrogen Consumption

One Birth Control Pill
contains the same amount of estrogen as
2,000 to 5,000 lbs of beef/day
from implanted steers
Equivalent of 10,000 to 25,000 - 3 ounce servings per day

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THAT'S DRUGGED UP

WHAT CONSUMERS SHOULD KNOW ABOUT ANTIBIOTICS IN AMERICA'S MEAT INDUSTRY

Antibiotics are used in the meat industry to treat sick animals and prevent the spread of disease. However, the overuse of antibiotics in the meat industry has led to the development of antibiotic-resistant bacteria, which can cause illness in humans. The USDA has implemented a new rule that requires meat producers to label their products with information about antibiotic use.

THE PLEthora

Antibiotic-resistant bacteria are found in meat products from all major sources. The following chart shows the percentage of meat products that are antibiotic-resistant, by source.

Source	Percentage of Antibiotic-Resistant Meat Products
CHICKEN	191%
SWINE	98%
POULTRY	77%
BEV	48%

AVAILABILITY AT GROCERY RETAILERS

The following chart shows the percentage of grocery retailers that carry antibiotic-resistant meat products, by retailer type.

Retailer Type	Percentage of Retailers Carrying Antibiotic-Resistant Meat Products
TRADER	191%
WALMART	98%
KROGER	77%
ALDI	48%

THE BARE

The following chart shows the percentage of grocery retailers that carry antibiotic-resistant meat products, by retailer type.

Retailer Type	Percentage of Retailers Carrying Antibiotic-Resistant Meat Products
TRADER	191%
WALMART	98%
KROGER	77%
ALDI	48%

ANY WAY YOU CUT IT: HOW TO READ YOUR LABELS

FOOD LABELS

- ORGANIC**: Meat from animals that were raised on organic feed and without the use of antibiotics.
- NO ANTIBIOTICS**: Meat from animals that were not given antibiotics.
- NO ADDED ANTIBIOTICS**: Meat from animals that were not given antibiotics.
- HUMANITARIAN ANTIBIOTICS**: Meat from animals that were given antibiotics for medical reasons.
- RAISED WITHOUT ANTIBIOTICS**: Meat from animals that were raised without the use of antibiotics.
- GROWN WITHOUT ANTIBIOTICS**: Meat from animals that were grown without the use of antibiotics.
- NEVER GIVEN ANTIBIOTICS**: Meat from animals that were never given antibiotics.

MEAT LABELS

- NATURAL**: Meat that is minimally processed and contains no artificial ingredients.
- ANTIBIOTIC-FREE**: Meat from animals that were not given antibiotics.
- NO ANTIBIOTICS**: Meat from animals that were not given antibiotics.

CONSUMERS WEIGH IN

86% of consumers say they are more likely to buy meat that is antibiotic-free.

72% of consumers say they are more likely to buy meat that is antibiotic-free.

PRICE, SCHMIGGE

60% of consumers say they are more likely to buy meat that is antibiotic-free.

ANOTHER 37%

37% of consumers say they are more likely to buy meat that is antibiotic-free.

IS THAT REALLY IN MY MEAT?

ANTIBIOTIC-RESISTANT BACTERIA CONTAMINATION

SALMONELLA & CAMPYLOBACTER BACTERIA FOUND IN

81% poultry **69% pork** **55% beef** **39% seafood**

Salmonella and Campylobacter bacteria cause millions of cases of food poisoning a year. Of the chicken served, **83%** was tainted with an antibiotic-resistant form of E. coli. Certain strains of E. coli cause urinary tract infections, pneumonia and other illnesses.

29.9 million pounds of antibiotics were sold in 2011 for meat and poultry production, compared to **777 million pounds** sold for human use.

SOURCE: AMERICAN OVERSIGHT, "SALMONELLA AND CAMPYLOBACTER CONTAMINATION REPORT," 2012

"We're in this together!"

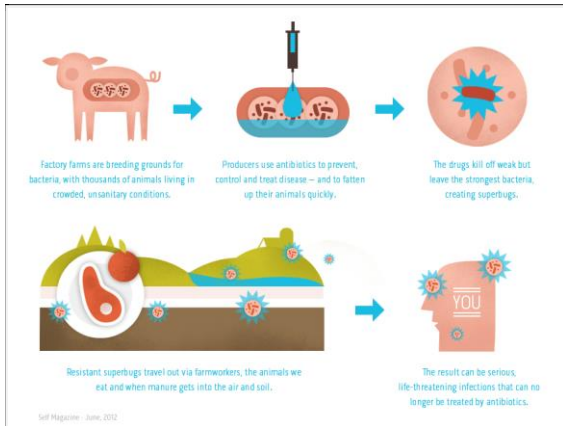
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[illegible]



DID YOU KNOW...

that *all* meat is
antibiotic free?
Find out more at
www.iowaturkey.org.

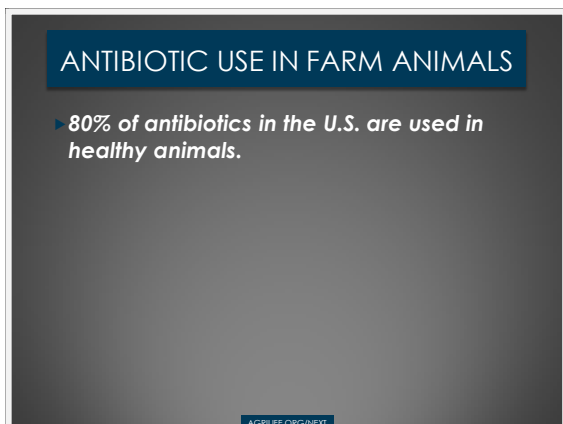


IS MY FOOD SAFE? ANIMAL ANTIBIOTICS









ANTIBIOTIC USE IN FARM ANIMALS

- ▶ **Myth:** "Food animals get 80% of the antibiotics used in the U.S. — mostly in ways that can lead to the growth of drug-resistant superbugs," Reads one WebMD Health News article.
- ▶ Since 2010, bloggers and the media quote 80% as the *de facto* number for antibiotic usage in animals. 80 percent is a nice big number, but it's wrong and misleading, for several reasons.

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ANTIBIOTIC USE IN FARM ANIMALS

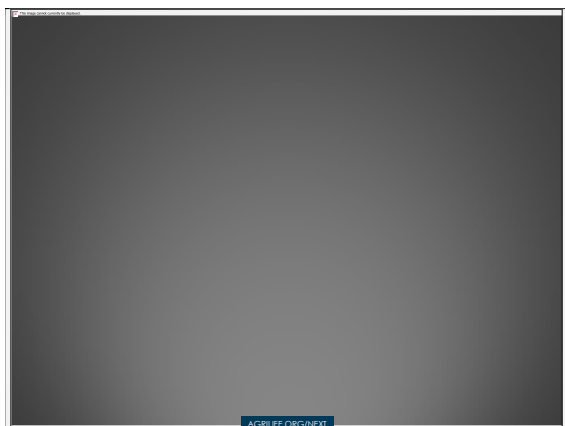
- ▶ The 80 percent figure was deduced from comparing two sets of data that are not comparable.

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ANTIBIOTIC USE IN FARM ANIMALS

- ▶ FDA clearly warns against the comparability of the human and animal data in a letter to Congresswoman Louise Slaughter and in a [caution](#) on the FDA website.

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Antibiotics Used in Humans and Animals

The vast majority of antibiotics are used either in people or in animals – not both.

Use By Volume	Humans	Animals
Penicillins	44%	6%
Cephalosporins	15%	1%
Sulfa	14%	3%
Quinolones	9%	less than 1%
Macrolides	5%	4%
Tetracyclines	4%	41%
Ionophores*	0%	30%

Sources: 2011 Summary Report on Antibiotics Sold or Distributed for Use in Food-Producing Animals, downloaded at: <http://www.fda.gov>

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ANTIMICROBIAL DRUGS APPROVED FOR USE IN FOOD-PRODUCING ANIMALS¹ ACTIVELY MARKETED IN 2013 DOMESTIC SALES AND DISTRIBUTION DATA REPORTED BY MEDICAL IMPORTANCE AND DRUG CLASS

	Drug Class	Annual Totals (kg) ¹	% Subtotal	% Grand Total
Medically Important ¹	Aminoglycosides	270,342	3%	2%
	Cephalosporins ¹	28,337	<1%	<1%
	Fluoroquinolones	15,099	<1%	<1%
	Lincosamides ¹	236,450	3%	2%
	Macrolides	563,251	6%	4%
	Penicillins ¹	828,721	9%	6%
	Sulfas ¹	384,371	4%	3%
	Tetracyclines ¹	6,514,779	71%	44%
	NIR ²	355,452	4%	2%
	Subtotal	9,196,803	100%	62%
Not Currently Medically Important ¹	Ionophores	4,434,657	79%	30%
	NIR ²	1,157,095	21%	8%
	Subtotal	5,591,752	100%	38%
	Grand Total	14,788,555		100%

ANTIBIOTIC USE IN FARM ANIMALS

- ▶ 35 % of the use attributed to animals are compounds not used in human medicine, thus having no potential for reducing the effectiveness of antibiotics used to treat human disease.

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ANTIBIOTIC USE IN FARM ANIMALS

- ▶ Most antibiotics used in animals are used for therapeutic purposes of treating, controlling and preventing disease.

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ANTIBIOTIC USE IN FARM ANIMALS

- ▶ For more than 40 years, antibiotics approved by the Food and Drug Administration have been used to treat sick animals, prevent and control illness and maintain their overall health.
- ▶ Livestock and poultry producers use these products to provide U.S. consumers with the safest food possible.

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ANTIBIOTIC USE IN CATTLE

- ▶ Primarily used for treatment of Bovine Respiratory Disease (BRD) "pneumonia"
- ▶ Most BRD occurs during Weaning phase
 - ▶ Metaphalaxis
 - ▶ Pull and treat
- ▶ Note on Poultry...Can you treat poultry for disease?

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ANTIBIOTIC USE IN CATTLE

- ▶ Some use to prevent bacterial infections at the cow calf level
 - ▶ Fed seasonally (during the vector season)

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MASTITIS



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FOOT ROT



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PINKEYE



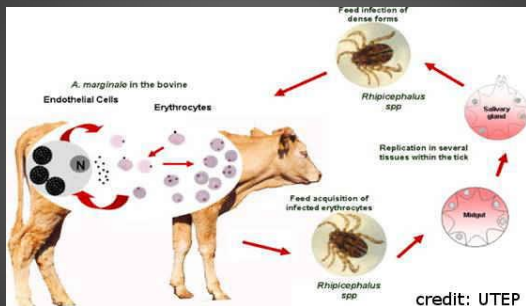
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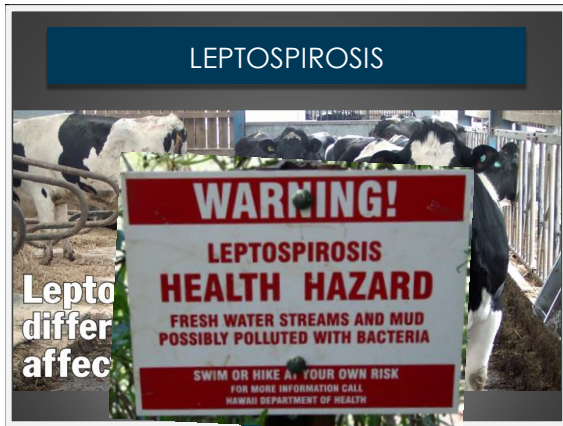


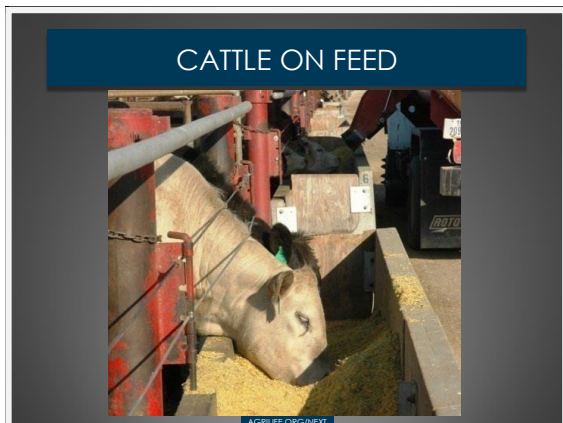
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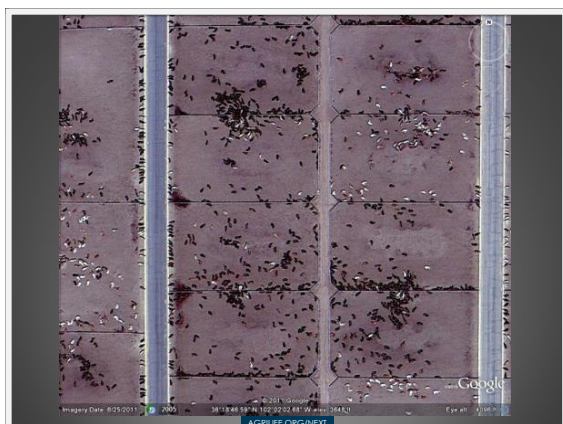
ANAPLASMOSIS



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ANTIBIOTIC USE IN CATTLE

- ▶ Used to prevent liver abscesses in feedlot cattle
 - ▶ "Natural" cattle have liver abscesses and livers are condemned on the majority of the cattle.

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LIVER ABSCESES



*You don't want to eat this! A cow liver afflicted with abscesses caused by *Fusobacterium necrophorum*.*

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LIVER ABSCESES



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ANTIBIOTIC USE IN CATTLE

- ▶ Bulk of the pounds of "antibiotics" used in the industry is in the form of an Ionophore.
 - ▶ Ionophors have no therapeutic activity
 - ▶ Are not absorbed out of the digestive tract
 - ▶ Only impact the bacterial populations in the rumen
 - ▶ Have no use in human medicine or even veterinary medicine.

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- ▶ The U.S. Food and Drug Administration (FDA) on August 14, 2014 released its National Antimicrobial Resistance Monitoring System (NARMS) [2011 Executive Report](#), showing mostly decreasing antimicrobial resistance trends.

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HOW MUCH ANTIBIOTIC IS IN MEAT

- ▶ It is illegal to sell meat or dairy products with violative residues from antibiotics.
- ▶ Products are constantly being monitored for antibiotic residues

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HOW MUCH ANTIBIOTIC IS IN MEAT

- Producers follow strict guidelines for the use and withdrawal of antibiotics prior to selling animals for harvest

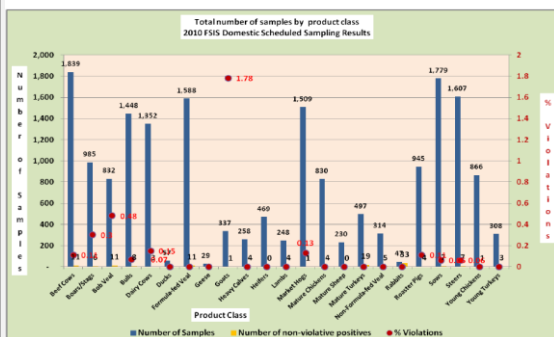
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HOW MUCH ANTIBIOTIC IS IN MEAT

- All antibiotics have been tested to determine the time required to be eliminated from an animals system or eliminated to a point that FDA has determined to be same for human consumption

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Figure 2. Total Number of Samples and Violation Rate by Production Class
2010 Domestic Scheduled Sampling Plan



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HOW MUCH ANTIBIOTIC IS IN MEAT

- ▶ Violative residues detected in meat is extremely small
- ▶ There is no added antibiotics to carcasses or meat post harvest.

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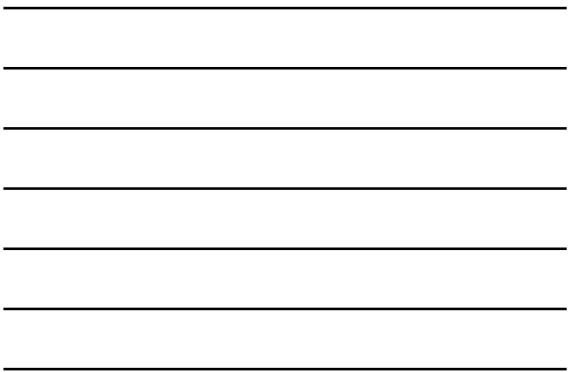
WHAT IS THE CONCERN?

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ANTIBIOTIC RESISTANCE



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Why You Should **NEVER** Use Hand Sanitizer



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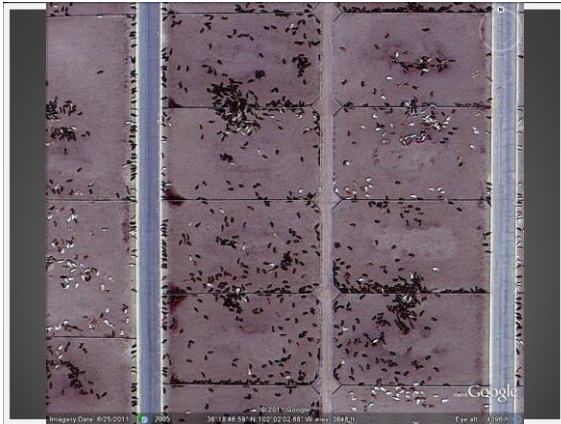
Drug Facts	
Active Ingredient Ethyl Alcohol 70% v/v	Purpose Antiseptic
Uses • Hand sanitizer to help reduce bacteria on the skin • recommended for repeated use	
Warnings • Flammable. • Keep away from fire or flames. • For external use only. When using this product: • avoid contact with eyes • in case of eye contact immediately flush eyes with water, call doctor • avoid contact with broken skin • discontinue use if irritation or redness develops. If condition persists for more than 72 hours, consult a doctor. Keep out of reach of children. Children should only use this product under adult supervision.	
Do not drink. Not edible. In case of accidental ingestion, seek professional assistance or contact a Poison Control Center immediately.	
Other information • do not store above 100° F. May discolor some fabrics • harmful to wood finishes and plastics	
Directions • place enough product in your palm to thoroughly spread on both hands and rub into the skin until dry • recommended for repeated use	
Inactive ingredients • sorbic acid, caprylic acid, capric acid, glycerin, isopropyl alcohol, isopropyl myristate, PEG-40 hydrogenated castor oil, polyethylene glycol, sodium lauryl sulfate, sodium benzoate, water	
<p>ITEM NO 17872</p> <p>3 9277 17872 5</p> <p>19873019450</p> <p>EST. 17872 DISTRIBUTED BY GREENBRIER INTERNATIONAL, INC. 500 YULIS PARKWAY, CINCINNATI, OH 45229 MADE IN THURLEY</p>	

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CATTLE ON FEED



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ANTIBIOTIC USE IN CATTLE

- ▶ Treat Bovine Respiratory Disease
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 - ▶ "Natural" cattle have liver abscesses and livers are condemned on the majority of the cattle.

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ANTIBIOTIC USE IN CATTLE

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These are huts in an isolated village inhabited by Yanomami Amerindians in a remote, mountainous area in southern Venezuela. Members of the tribe were isolated from the modern world and had never been exposed to antibiotic drugs, but the bacteria on their skin and in their mouths and intestines still had antibiotic resistance genes.

Credit: Oscar Noya-Alarcon

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BACTERIAL FLORA OF REMOTE TRIBESPEOPLE CARRIES ANTIBIOTIC RESISTANCE GENES

- **Date:** April 17, 2015
- **Source:** Washington University in St. Louis
- **Summary:**
- Scientists have found antibiotic resistance genes in the bacterial flora of a South American tribe that never before had been exposed to antibiotic drugs. The findings suggest that bacteria in the human body have had the ability to resist antibiotics since long before such drugs were ever used to treat disease.

Science Daily
<http://www.sciencedaily.com/releases/2015/04/150417145023.htm>

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