

# ZIVO Bioscience

## Business Case: Bovine Mastitis

### Application Potential

- Milk production losses due to bovine mastitis (caused by staph, strep, *e. coli*, klebsiella, mycoplasma infections) averages about \$3.0 billion annually in the US alone, when all costs are attributed and producer prices are at \$17 to \$18 per hundredweight for saleable milk
- At any one time, up to 10% of dairy cows suffer from mastitis during the course of a year in the US
- The US milking herd of 9 million dairy cows represents about 3-1/2% of the world's 244 million dairy cows in regular production
- Estimates of all-inclusive economic losses average \$1,100 per case (including mortality and replacement) according to industry estimates provided to ZIVO Bioscience principals
- Other sources, such as the National Mastitis Council, Penn State Extension, Michigan State Extension, put the average treatment and milk losses cost per animal annually at \$200 - \$300 (depending on severity, pathogen and treatment method), which translates to \$2-3 billion in production losses
- *Mycoplasma bovis* is an infective pathogen that is antibiotic-resistant. There is no known cure or treatment. The only method of control is culling once the pathogen is discovered in a dairy herd
- *Mycoplasma bovis*, representing about 2% of mastitis cases in the Midwest and Eastern seaboard, results in a total loss of the animal, unlike other infective pathogens. In the Southwest and West Coast, mycoplasma represents a much higher percentage of mastitis cases, again resulting in a total loss of the animal
- Pre-pilot and pilot studies utilizing the ZIVO extracts have shown improvement in milk production, lessening of symptoms and other beneficial effects even when cows were infected with antibiotic-resistant mycoplasma *bovis* pathogen
- ZIVO extracts have been shown in preliminary *in vitro* and *in vivo* testing to be effective in suppressing staph, strep, *e.coli* colony-forming-units
- On Dec 11, 2013 the FDA issued draft guidance requiring livestock producers to procure a script from a veterinarian for antibiotic use, rather than purchasing in bulk and using pre-emptively to boost production, effective December, 2016

### Sources

National Mastitis Council, Zoetis, Michigan State University Extension, Penn State University Extension, New York Times, individual researchers associated with University of Wisconsin – Madison Dept. of Dairy Science; Dairy Experts, LLC – a contract dairy research organization operating at the University of California – Davis agricultural research facility in Tulare County, California

## F.D.A. Restricts Antibiotics Use for Livestock

By [SABRINA TAVERNISE](#) DEC. 11, 2013

WASHINGTON — The Food and Drug Administration on Wednesday put in place a major new policy to phase out the indiscriminate use of antibiotics in cows, pigs and chickens raised for meat, a practice that experts say has endangered human health by fueling the growing epidemic of antibiotic resistance.

This is the agency's first serious attempt in decades to curb what experts have long regarded as the systematic overuse of antibiotics in healthy farm animals, with the drugs typically added directly into their feed and water. The waning effectiveness of antibiotics — wonder drugs of the 20th century — has become a looming threat to public health. At least two million Americans fall sick every year and about 23,000 die from antibiotic-resistant infections.

“This is the first significant step in dealing with this important public health concern in 20 years,” said David Kessler, a former F.D.A. commissioner who has been critical of the agency's track record on antibiotics. “No one should underestimate how big a lift this has been in changing widespread and long entrenched industry practices.”

The change, which is to take effect over the next three years, will effectively make it illegal for farmers and ranchers to use antibiotics to make animals grow bigger. The producers had found that feeding low doses of antibiotics to animals throughout their lives led them to grow plumper and larger. Scientists still debate why. Food producers will also have to get a prescription from a veterinarian to use the drugs to prevent disease in their animals.

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